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ABSTRACT

This document reports findings from data collected from large nationally representative samples of high school seniors in the classes of 1985-1989 as part of the Monitoring the Future project. Its primary focus is on the possible costs and benefits of part-time work among high school seniors. The focus of the report is on three psychosocial themes: problem behaviors (drug and alcohol use, aggression, victimization); time use (sleep, exercise, recreation); and subjective experiences (satisfaction, self-esteem). Results are presented which revealed that hours of work were positively correlated with smoking cigarettes, drinking alcohol, using illicit drugs, interpersonal aggression, theft, trouble with police, arguments with parents, victimization, lack of sleep, lack of exercise, and truancy, and negatively correlated with seniors' satisfaction with the way their leisure time was spent and the amount of fun they had. It is also noted that self-esteem showed practically no correlation with hours worked. The document concludes that the interpretation of these findings is difficult since long working hours (and high earnings) are reactions to other factors, some of which may be pre-existing problems. It is suggested that policies aimed at curbing hours or earnings should be viewed with caution at this point. Two tables and 33 figures are included. (NB)

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PART-TIME WORK AMONG HIGH SCHOOL SENIORS: HOW MUCH IS TOO MUCH?

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INTRODUCTION

The centrality of work in modern society is obvious. How adults define themselves and how others view them depend considerably on their work status and occupation. As Wilensky (1964) suggests, "work ... remains a necessary condition for drawing the individual into the mainstream of social life" (p. 134). Among adults, job loss may contribute to decrements in emotional and physical health (e.g., Kessler, House, & Turner, 1987), and likewise, stable reemployment (after job loss) contributes to increased emotional well-being (Kessler, Turner, & House, 1989). In short, at many levels in our society, working is deemed as "good". However, when the individuals in question are adolescents, the issue is less clear.

Several benefits have been attributed to the part-time employment of adolescents. In particular, it has been argued for many years that one way of easing the transition from school to work, and also of dealing with the limitations of formal schooling (e.g., overlong protection from the "real world", narrow age segregation, lack of contact with adults), is to involve young people in meaningful work experiences while they are still in high school. For the adolescent, caught between childhood and adulthood roles, a job can move him or her a few steps closer to adulthood. With a job, the adolescent can demonstrate responsibility, achieve some autonomy, and gain "real world" experience. In some cases, the adolescent may be able to gain some work experience that is directly relevant to his or her future career. Of course, the working adolescent typically earns money, most of which is used for current needs and activities, but some of which may be used for future education or training (cf. Bachman, 1983). At the societal level, adolescent part-time work provides a method of transferring work attitudes and competencies to tomorrow's adult workers. And, of course, it also provides a source of relatively cheap, unskilled labor.

Until about 10 or 15 years ago, there was little concern with the possible negative impacts of adolescent part-time work. Indeed, many of the assumptions cited above about the positive aspects of working appear to have served as a foundation for government legislation aimed at improving the future employment prospects of disadvantaged youth during the 1960s and 1970s (e.g., the 1964 Economic Opportunity Act, the Comprehensive Employment and Training Act of 1973). Likewise, the 1970s witnessed a strong push

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toward a generalized integration of school and work. Various government panels (e.g., President's Science Advisory Committee, Panel on Youth, 1974; Work-Education Consortium, 1978; National Commission on Youth, 1980) stressed the virtues of work for young people and recommended that efforts be made to combine education and work experiences. For example, the National Commission on Youth (1980) suggested that part-time work could be the "single most important factor" in the socialization of youth to adulthood, fostering such attributes of maturity as independence and responsibility, realistic career decisions, and good work attitudes and habits. Unfortunately, these panels relied little on empirical evidence (cf. Hamilton & Crouter, 1980). Nevertheless, it appears that the prescription that young people take on part-time work during their high school years has been widely followed for more than a decade now; the majority of high school students are working part-time during the school year, and many put in long hours on the job.

In recent years, there has been considerable concern with the possible "costs" of part-time work during adolescence. A debate has developed about whether the types of jobs that are typical among high school students really fit the original prescriptions, and whether these typical experiences are more positive than negative in their consequences for teenagers. Greenberger and Steinberg and their colleagues have suggested that what adolescents do and what they learn in the workplace may not always be beneficial to their psychosocial health and development, and that working long hours takes away from other experiences that are important for the adolescent and his or her family (e.g., Greenberger & Steinberg, 1986; Greenberger, Steinberg, & Vaux, 1981; Steinberg & Dornbusch, 1991; Steinberg, Greenberger, Garduque, Ruggerio, & Vaux, 1982). Indeed, there is clear evidence that "problem behaviors" (e.g., drug and alcohol use, delinquency) are positively related to hours worked among high school students (e.g., Bachman, Bare, & Frankie, 1986; Greenberger et al., 1981; Mortimer, Finch, Shanahan, & Ryu, 1990a; Steinberg et al., 1982; Steinberg & Dornbusch, 1991). Likewise, there is evidence to suggest that long hours on the job may be linked with poor school performance (e.g., Bachman et al., 1986; Charner & Fraser, 1987; Mortimer & Finch, 1986; Steinberg et al., 1982; Steinberg & Dornbusch, 1991; Yasuda, 1990), less than satisfying relationships with peers and parents (Greenberger et al., 1981; Steinberg & Dornbusch, 1991; Steinberg et al., 1982; but see Mortimer & Shanahan, 1990), and cynical attitudes regarding business ethics (e.g., Steinberg et al., 1982).

Nevertheless, as Mortimer and her colleagues have indicated, much of the relevant research has focused on the possible negative outcomes of part-time work, while failing to consider the possible positive outcomes (e.g., Yamoore & Mortimer, 1990; Mortimer et al., 1990a). There is evidence indicating that there are indeed some possible benefits of part-time work, including personal responsibility and orientation toward the future (e.g., Steinberg et al., 1982; Stevens, Puchtell, Ryu, & Mortimer, 1991). In addition, there is general agreement among the researchers that the causal direction between part-time work and the positive and negative correlates has not been fully addressed (e.g., Bachman et al., 1986; Steinberg & Dornbusch, 1991; Mortimer et al., 1990a), leaving open the possibility that part-time work has little unique impact on any of the established positive or negative correlates.

In the present investigation, our primary concern is with the possible costs and benefits of part-time work among the nation's high school seniors. In an attempt to provide a more complete picture of how part-time work fits within students' lives, we focused our attention on three broad psychosocial themes, including: a) problem behaviors (e.g., drug and alcohol use, aggression and victimization); b) time use (e.g., time spent on sleep and exercise, evenings out); and c) subjective experiences (e.g., satisfaction, self-esteem). In addition, based on the evidence concerning gender differences on the experiences and effects of part-time work (e.g., Mortimer, Finch, Owens, & Shanahan, 1990b; Steinberg et al., 1982; Yamoore & Mortimer, 1990), we examined the correlates of part-time work separately for males and females.

The analysis we report today used large nationally representative samples of high school seniors from the classes of 1985-1989 in order to address three interconnected questions. These questions bear directly on issues which have been discussed extensively in the literature. Of course, the questions are also of practical importance to adolescents, parents, teachers, school officials, employers, and others concerned with the development of the nation's youth.

1. How is Part-Time Work Related to Other Important Outcomes of Young People?

At the most descriptive level, our analysis asks what are the bivariate relationships between hours of part-time work, or "work-intensity," and a variety of important "outcome" measures. We are asking more than whether there are positive or negative correlations between hours of work and these outcomes; rather, we look at a number of different amounts of work in order to explore the shape of the relationship. The practical question underlying this phase of analysis can be phrased as "How much part-time work is too much?" Indeed, this was the initial question that motivated us to undertake the present investigation, and it reflects several statements in the literature indicating that the negative effects of part-time work are particularly strong for those working more than 15 to 20 hours per week.

An auxiliary question is whether working zero hours is best treated as a simple end point to the continuum of hours worked. If virtually all high school students have the opportunity to work, then this might be appropriate. However, if some (perhaps many) of the non-workers would prefer employment, and if the lack of employment opportunities correlates with other disadvantages, then it may be that many of the non-workers are qualitatively different from their classmates; if so, then non-work should not be treated as merely the zero end of the hours-of-work continuum. Here again, the exploration of relationships which are not strictly linear is an important facet of the present analyses.

2. Do Relationships with Hours of Work Indicate a Causal Impact?

For each bivariate relationship between hours of work and some "outcome" dimension, the fundamental question remains as to how it should be interpreted: Does the relationship reflect causal impacts of part-time work, or does it result primarily from the operation of earlier and more fundamental "third variables"? This, of course, is a major issue in the part-time work debate, and addressing this issue necessitates the inclusion of appropriate

statistical and methodological controls over potential "third variables". Accordingly, a central feature of the present analysis is to control aspects of background and educational success which could be responsible for the bivariate relationships. For those analyses relating part-time work to drug use, we also introduce some controls for prior drug use (based on retrospective accounts of when various drugs were first used).

3. To What Extent Are Earnings a Key Factor in any Effects of Students' Work? A final question examined in this analysis involves the role of income in any relationship between hours of work and selected outcome variables. Although the prescription of part-time employment as a valuable experience for high school students is based on the expectation of other sorts of benefits, we suspect that in fact most students work primarily "for the money" (Bachman, 1983). Much of the relevant literature has failed to consider the role of earnings in the relationship between hours worked and various psychosocial outcomes. For the adolescent, earnings can represent power and independence (e.g., Weinstein, 1975). Earnings can also represent aspects of the job that are not reflected in work intensity, such as job status or length of employment. Of course, money may also facilitate engagement in many of the problem behaviors that have been attributed to long hours, particularly drug use. Thus it seems important to check whether any apparent effects of work -- either positive or negative -- may best be characterized as indirect effects via earnings.

METHODS

Our data collection and analysis methods, as well as our findings, are reported at some length in a separate report (Bachman & Schulenberg, 1991). Today we have time only to present highlights.

The Monitoring the Future project surveys 16,000 to 17,000 high school seniors each year, in samples of public and private high schools representative of the 48 coterminous states (Bachman & Johnston, 1978; see also Johnston, O'Malley, & Bachman, 1989). The present analyses combined the classes of 1985-1989, and were carried out separately for males (up to 34,575 cases) and females (up to 37,288 cases). (These are the numbers of respondents for whom the employment data were available. Actual numbers in analyses were slightly lower due to missing data on other measures.)

The survey instruments were self-completed questionnaires, optically scanned. They were administered in school, usually in a regularly-scheduled class, and required about 45 minutes to complete.

The key measure of hours worked was the following question: "On the average over

the school year, how many hours per week do you work in a paid or unpaid job." Eight response categories were available ranging from "none" to "more than 30 hours." We placed the not working for pay in a separate category, resulting in the nine categories shown in Table 1.

[TABLE 1 ABOUT HERE]

FINDINGS: MULTIPLE CLASSIFICATION ANALYSES

A basic question addressed in this paper is whether there is some optimal number of hours for part-time work by high school seniors. To put it differently, we wanted to learn whether any problems associated with work seem to mount more rapidly once a certain number of hours is exceeded.

Another basic question is whether any bivariate relationships between hours of work and other "outcome" measures remain important after controlling for background factors and prior educational success. The key background factors controlled were race, parent(s) education, region, and urbanicity. The indicators of prior educational success included curriculum, high school grades, and college plans. We take the position that these are good indicators of long-term educational success, and that they are mostly causally prior to senior year part-time work. However, that is a debatable proposition, to which we return at length later.

To deal with these basic questions we needed an analysis technique which can handle non-linear (as well as linear) relationships, and can deal with multiple predictors (some of which are categorical rather than continuous).

We used Multiple Classification Analysis (MCA), a form of dummy variable multiple regression analysis which is ideally suited to this task (Andrews, Morgan, Sonquist, and Klem, 1973). The results for all predictors are included in our longer report; today we present just the highlights focusing on hours of work as a predictor. We present the findings in a series of charts showing both the bivariate (unadjusted) relationships and the multivariate relationships (adjusted for background and educational success).

Drug Use Linked to Hours of Work. Figure 1 (solid lines) shows a strong bivariate relationship between hours of work and half-pack-a-day (or more) smoking; whereas among those working 1-5 hours a week only 5-6% are half-pack-or-more smokers, the prevalence rate is about 19% among those working more than 30 hours—a ratio of three-to-one. The strength of the relationship is "dampened down" somewhat when we adjust for background characteristics and educational success (dotted line). Even with these adjustments, however, the ratio is still greater than two-to-one.

[FIGURE 1 ABOUT HERE]

Figure 2 shows that most high school seniors reported some use of alcohol in the last 30 days, but the percentages are higher among those working longer hours—especially for males. Figure 3 shows that proportions reporting some heavy use of alcohol (five or more drinks in a row at least once during the past two weeks) is also positively—and fairly linearly—related to hours of work.

[FIGURES 2 AND 3 ABOUT HERE]

The next figures show that hours of work are positively related to illicit drugs including marijuana (Figure 4), cocaine (Figure 5), and amphetamines (Figure 6).

[FIGURES 4, 5, AND 6 ABOUT HERE]

There are large differences among the five drugs just reviewed—especially in terms of prevalence rates. But there are also important similarities in relationships to hours of part-time work. First, consistent with our earlier findings and with other studies cited earlier, we saw positive bivariate relationships between hours of work and use of each drug. Put more simply, those who work longer hours are more likely to use each of the drugs examined here.

Second, as we sought to discover whether these bivariate relationships were attributable to other "third" variables, we saw that the introduction of controls for background and educational success reduced the strength of those relationships—generally by a factor of about one-quarter to one-third. On the one hand, such reductions leave most of the initial bivariate relationship intact; on the other hand, we must keep in mind that our set of control measures is necessarily incomplete, and not free from error. Thus we infer from these partial reductions in relationships that if better controls were available, then the reductions would probably be greater.

Third, we saw that the patterns of relationship between hours of work and each dimension of drug use were in most respects fairly close to linear, both before and after controlling for background and educational success. Certainly one cannot look at the several figures just presented and conclude that there is some clear and consistent number of hours of work above which things "get worse more quickly," or below which the number of hours worked show little differential impact on drug use. To the contrary, the most general interpretation of the drug use findings in this section would have to be that part-time work is related to drug use, and the more hours worked the greater the likelihood of use.

Fourth, we see that the use of most drugs is at or near the lowest levels among those not working at all—at least for males. Among females the same pattern is clear for alcohol use, but not quite so clear for other drugs. Still, if we were to base our conclusion only on the data presented thus far, we might well conclude that not working can indeed be treated as a simple end point to the continuum of hours worked. Some of the findings reported below make that generalization less appropriate. But in the case of drug use, with the possible

exception of cigarette use among girls, it does seem to be the case that those not working are among the least likely to be "at risk."

We should note here that one of the reasons for the lower risk among the non-employed seniors, and also among those working few hours, is that they may not have as much money to spend for socializing in general and alcohol and drugs in particular. We turn to that topic a bit later.

Other Deviant Behaviors Linked to Hours of Work. Drug use has been a focus of great concern in recent years, but there are a variety of other deviant or "problem" behaviors which for many years have been studied by those interested in youth and in social problems. We turn now to a set of measures in which seniors report their own misbehaviors, and also their victimization by the misbehaviors of others.

Figure 7 shows that interpersonal aggression is positively correlated with hours of work, and the relationships are reduced to only a slight extent when background and educational success are controlled. Males working more than thirty hours per week report twice as much aggressive behavior as those working fifteen or fewer hours, and the story is much the same for females (although their rates of aggression are far lower than those of males. (Note that the scaling of this index is such that the lowest possible score is 1.0, indicating zero aggressive behavior. Therefore, even among males working over 30 hours per week, interpersonal aggression is not that extensive.) Among both males and females the pattern of association departs somewhat from linearity; there is little variation in aggression until hours of work are fairly long—indeed, the real increases involve only the longest hours worked. These findings offer some support for the argument that working very long hours (in addition to attending school) can leave seniors irritable and aggressive.

[FIGURE 7 ABOUT HERE]

An index of theft also is positively related to hours worked, as shown in Figure 8, with little change after inclusion of the control measures. The pattern is roughly linear among males, although here again prevalence jumps considerably for those working over 30 hours per week; among females, theft seems to rise above ten hours of work but change little thereafter. Those not working showed some of the lowest levels of theft. The findings here certainly do not suggest that the lack of money causes high school seniors to steal; to the contrary, those with perhaps the lowest incomes (i.e., those not working, and those working few hours) also reported the least theft.

[FIGURE 8 ABOUT HERE]

A single item asked seniors how often in the last twelve months they had gotten into trouble with police because of something they did; most said not at all, and most of the rest reported that it happened only once. We thus chose to analyze a simple dichotomy, as we did for the drug use measures, and we report percentages who had any trouble with police.

The results in Figure 9 show somewhat positive correlations with hours of work. Among males, those not employed show the lowest prevalence of trouble with police; however, that is not the case for females. On the whole, and especially in the case of males, these findings do little to support the notion that having students actively involved in part-time jobs will keep them out of trouble with police. (Of course, this leaves open the question of how much more trouble those working long hours might encounter if they were not working such long hours.)

[FIGURE 9 ABOUT HERE]

Another single item asked seniors how often in the last twelve months they had argued or had a fight with either parent. About half of the females and nearly as many males chose the top response category (five or more times), and the overall means show that the typical senior recalled having three or four such encounters. (Incidentally, we suspect that the majority of such encounters are more aptly described as "arguments" than as "fights.") The relationships displayed in Figure 10 show that as hours worked increase from fewer than five up to the sixteen-to-twenty hour category, arguments/fights with parents tend to increase; however, beyond twenty hours the pattern for males is bumpy and difficult to interpret, whereas for females the confrontations with parents seem to decline somewhat as hours of work increase beyond twenty (although the latter finding is damped down after controls for background and educational success). The lowest rates of arguments/fights occur among those not working.

[FIGURE 10 ABOUT HERE]

We reported above that those working longer hours are generally more likely to be perpetrators of aggression and theft; now we consider whether they are also more likely to be on the receiving end of such behaviors. Figure 11 shows somewhat bumpy but predominantly positive associations between hours of work and victimization. At the extremes, rates of victimization are at least half again as high among those working more than thirty hours compared with those working five or fewer hours, or those with no job. Controlling for background and educational success leaves these patterns virtually unchanged.

[FIGURE 11 ABOUT HERE]

Like the measures of drug use examined in the preceding section, these several measures of other deviant behaviors have shown generally positive relationships with hours of work, although some of the patterns have departed from linearity in various ways. There is little in these shapes of relationship, taken together, which would indicate some optimal number of hours that high school students could work before generating some increase in problem behavior. Rather, it appears that each increase in number of hours worked is associated with an show some increase in one or more of the problems. Causal interpretations, of course, remain more difficult; however, it should be recalled that the introduction of controls for background and educational success did little to change the

bivariate relationships in this section.

Health-Related Behaviors Linked to Hours of Work. One of the criticisms of part-time work among high school students, especially when it involves long hours, is that it steals time from other important activities -- including such important matters as taking time to eat breakfast, getting enough sleep, and periodically exercising. In this section we examine each of these three behaviors.

To the question "How often do you get at least seven hours of sleep?" the median response among high school seniors is "Most days" (which is the fourth category on a six-point scale ranging from "Never" to "Every day"). Figure 12 shows relatively strong negative correlations between hours of work and getting seven hours of sleep. The relationships are equally strong among males and females, they are nearly linear, and they are utterly unaffected by controls for background and educational success.

[FIGURE 12 ABOUT HERE]

The responses to a question about eating breakfast are bimodal: more than a third of the males, and even more females, report that they seldom or never eat breakfast; more than a third of the males, but only half as many females, report doing so every day or nearly every day. The relationships with hours of work are displayed in Figure 13. Again the behavior shows fairly strong negative correlations with hours of work, and patterns which are nearly linear. Here, however, there is a modest reduction in the strength of relationship when other factors are controlled. Those with no job do somewhat better than average, but not as well as those working very few hours.

[FIGURE 13 ABOUT HERE]

A question about exercising vigorously refers to jogging, swimming, calisthenics, or any other active sports. We suspect that some respondents are unlikely to include vigorous work activity within this category, and thus any on-the-job exercise is likely to be underestimated. The relationships involving this measure are shown in Figure 14. The results are similar to those for the other health-related behaviors -- up to a point. As hours of work increase the likelihood of exercise goes down, up to the category of 21-25 hours of work. Beyond that point, however, further increases in hours are associated with increased reports of exercise. This is true for both males and females, and the pattern becomes more pronounced when background and educational success are controlled. It may be that working long hours often does include enough vigorous activity to be reported in this question (in spite of the wording bias in favor of sports). It seems less plausible to us that increasing the hours committed to part-time work by another five or ten or more hours would free up more time for sports. Here again those without jobs are better off than average (i.e., exercise more), but not as well off as those working just a few hours.

[FIGURE 14 ABOUT HERE]

If we were looking for a "smoking gun" to help convict long hours of part-time work as a hazard for high school students, our best candidate thus far is the relationship with hours of sleep. Controls for likely prior causes such as background or educational success have no effect whatever on this relationship. And the interpretation seems completely straightforward: students who spend more hours on the job simply have less time for sleep. To a considerable extent, they also short-change themselves with respect to other health-relevant behaviors such as eating breakfast and exercising vigorously. On the other hand, these findings also show that in general those who work ten or fewer hours per week are no worse off than those with no job -- and those who work just five or fewer hours actually seem somewhat better off.

Truancy, Dating, and Evenings Out Linked to Hours of Work. If long hours of part-time work result in fewer hours for sleep, exercise, and proper eating, then perhaps this competition for time is also reflected in greater frequencies of truancy and less time for dating and other evenings out for recreation. In this section we explore these questions.

Males miss more days of school than females (for reasons other than illness); however, Figure 15 indicates that for both sexes those working more than thirty hours on a job miss twice as many days, on average, as those who work five or fewer hours (note that the lowest possible score is 1.0, indicating zero days missed). The relationships are essentially linear, and are reduced only modestly when background and educational success are controlled. Those with no job are roughly comparable to those working just 6-10 hours on a job.

[FIGURE 15 ABOUT HERE]

Do those who work long hours have less time to go out just for fun and recreation? The results in Figure 16 show only weak relationships which appear curvilinear. Those working 16-20 hours per week are most frequently out for fun and recreation, whereas increased hours beyond that seem associated with slightly fewer evenings out. However, the size of the eta and beta coefficients are very low, thus indicating that evenings out have little to do with work intensity.

[FIGURE 16 ABOUT HERE]

Does the time competition of long hours on a part-time job give seniors less time for dating? Here the findings, displayed in Figure 17, are unequivocal—and the answer is negative. Or perhaps it would be more accurate to say that in spite of whatever time restrictions their jobs impose, those who work longer hours average more evenings out on dates. (We should note, however, that all of the categories shown in Figure 17 averaged below 4.0, which corresponds to dating once a week.)

The findings for dating suggest once again the importance of the income associated with work—all the more so when we note that the pattern is a bit clearer for males, given

that the financing of dating still tends to fall more heavily on males than on females.

Dimensions of Satisfaction Linked to Hours of Work. Most of the outcomes considered thus far have been rather objective indices of psychosocial functioning. But the verdict on work status and intensity during adolescence should depend also on how they influence adolescents' self-reported happiness and well-being. In this section we consider subjective indices related to satisfaction with life overall, as well as satisfaction with specific aspects of the adolescents' lives.

Results regarding satisfaction with life are presented in Figure 18. For males, the relationship between work intensity and satisfaction with life is weak and non-linear, especially after adjustments. For females, the relationship again appears non-linear; in particular, there are sharp declines in reported satisfaction as work exceeds 25 hours per week.

[FIGURE 18 ABOUT HERE]

Results regarding satisfaction with self are presented in Figure 19. Clearly, this variable shows little systematic relationship with work intensity.

[FIGURE 19 ABOUT HERE]

Results regarding satisfaction with how much fun one is having are presented in Figure 20. For males, the relationship is somewhat negative, but bumpy. For females, the relationship is clearly non-linear, with reported satisfaction with amount of fun being highest among those who work 6 to 10 hours a week. Reported satisfaction declines in a linear fashion thereafter with increasing hours, until a considerable drop in satisfaction among those working more than 30 hours per week. The controls exerted little impact on the scores.

[FIGURE 20 ABOUT HERE]

One might suspect, given the previously-described results regarding time constraints (e.g., sleep-time), that satisfaction with leisure time is negatively related to work intensity. As is evident in Figure 21, such is the case for both males and females. The relationships are nearly linear, fairly strong, and virtually unaffected by the control variables.

[FIGURE 21 ABOUT HERE]

The final aspect of satisfaction considered is job satisfaction, with results presented in Figure 22. For males, the relationship is non-linear, with job satisfaction lowest among

those working 11 to 15 hours (a level of work intensity that appears to be optimal for some other outcomes), and highest among those working in excess of 30 hours. For females, the relationship is somewhat linear, with job satisfaction highest among those working 16 hours or more a week (especially once controls are included).

[FIGURE 22 ABOUT HERE]

The satisfaction indices provide unique and important information regarding the impact of work status and intensity. Among the more striking findings, those working 6 to 10 hours per week (both males and females) tend to be among the most satisfied. For females, working only 1 to 5 hours per week is not linked to high levels of satisfaction, a finding that may be due less to the number of hours, per se, than to the type of work that females working less than 5 hours per week are likely to hold (e.g., babysitting). For males, those working the longest hours (i.e., over 30 hours per week) report both the highest job satisfaction and highest satisfaction with self. At the same time, they report the lowest satisfaction with fun and recreation. These patterns generally hold for females working the longest hours, with the exception of satisfaction with self. Perhaps working at a near full-time level during the senior year of high school, especially among males, engenders more of an adult-like perspective on work; indeed, it may be that these students are a step closer to assuming adulthood roles than their age-mates working fewer hours.

Self-Esteem Linked to Hours of Work. The final construct to be considered with the MCAs was self-esteem. As is clear in Figure 23, the number of hours worked demonstrated virtually no association with self-esteem for males and females.

[FIGURE 23 ABOUT HERE]

FINDINGS: STRUCTURAL EQUATION (LISREL) MODELING

This phase of the analysis focuses first on the role of earnings as a factor in any impacts of part-time work on the drug use outcome variables. A simple causal model is used, which controls for high school grades and examines the extent to which relationships between hours of work and drug use appear to be mediated via earnings.

The LISREL modeling is reported in full detail in our longer report; today we have time to note only a few highlights.

The LISREL analyses build upon the earlier MCA analyses in several ways. First, the MCA analyses establish the appropriateness of treating key relationships as essentially linear in the LISREL analyses. Second, the MCA analyses indicate the extent to which the choice of high school grades as a single control variable is reasonable for these LISREL analyses. Finally, the MCA analyses indicate the complexities of examining these relationships across racial groups. Our resolution of this latter problem, for present

purposes, is to conduct the LISREL analyses on White (non-Hispanic) students only. Because White students comprise more than three-quarters of the sample, they tend to dominate relationships in any case. Nevertheless, if we were to include Black students, for example, the fact that they have lower levels of part-time work as well as lower levels of drug use might confound the relationships of primary interest unless complicated controls were introduced. For these analyses we have instead opted to focus on the single largest group in order to explore the relationships. Later analyses may consider whether similar patterns of relationship apply for Blacks and Hispanics.

Another important simplification for the LISREL analyses is to confine the sample to those working for pay. Since a primary focus is on the extent to which variations in hours of work have their impacts via the (resulting) variations in income, it is necessary to restrict the analyses to those who work for pay (rather than confound the zero category on both dimensions).

Analyses Controlling High School Grades. The LISREL analyses controlling high school GPA and focusing on the role of earnings use a simple model which we have termed "Pattern A." The model, and the results for males and females for use of cigarettes, alcohol, marijuana, and cocaine, are presented in Figures 24 through 28. (Note that only the structural portions of the models are included in the figures. The measurement models did include error terms for all observed variables, even single indicators; therefore, the structural parameters are disattenuated for measurement error.)

The findings for cigarette use, presented in Figure 24, show that for males any effects of hours per week on cigarette use are best treated as direct rather than indirect via pay per week. For females, on the other hand, much of any impact of hours worked on smoking appears to be indirect, via earnings.

[FIGURE 24 ABOUT HERE]

The findings for alcohol use, heavy drinking, and marijuana use tell a story similar to that for cigarettes. In each case, including data on work hours and earnings improves our prediction of drug use above and beyond the prediction from high school GPA. Also, in each case the effects for males are primarily direct from hours to drug use, whereas for females they are indirect via earnings.

[FIGURES 25-27 ABOUT HERE]

For cocaine use, however, the story is a bit different. Now for males as well as females the effects of hours of work are best interpreted as indirect via earnings, as shown in Figure 28. Given the high cost of cocaine, it is not surprising that the earnings variable is particularly important.

[FIGURE 28 ABOUT HERE]

Analyses Controlling Earlier Drug Use (and GPA). A second set of LISREL analyses, using a more complex model which we have termed "Pattern B," was conducted primarily to learn whether senior year hours of work had impacts on current drug use once earlier drug use was controlled. Our control measures were thus expanded to include retrospective accounts of grade of first use of cigarettes, grade of first daily smoking, grade of first alcohol use, grade of first experience of being drunk, and grade of first marijuana use. These five measures were reverse-coded (i.e., high score reflects early drug use), and used to define a latent construct termed "Early Drug Use." This construct was treated as an exogenous variable, along with high school GPA, as shown in Figures 29-33.

[FIGURES 29-33 ABOUT HERE]

We do not have the time today to go through the findings in any detail at all. Fortunately, the most important finding can be summarized very briefly: once we control for earlier drug use in this fashion, the measures of senior year hours worked and earnings provide little or no additional explanation of variance in current drug use.

That is a very important finding, but one that is fraught with difficulties and complications. We return to these in the latter portion of our discussion.

DISCUSSION

Should an adolescent work during the school year? And, if so, how much? These questions remain difficult, at least for us, because we think any general answers provided by survey data depend heavily on initial assumptions and the analysis strategies which are based on those assumptions. And, of course, any answer at the individual level should take account of the type of work and how that work may fit into the adolescent's future goals.

The observations of Steinberg and Dornbusch, based on their recent study of the impacts of adolescent employment, provide one set of answers to the above questions: "Contrary to the popular belief that working during adolescence is beneficial to young people's development, the findings presented here indicate that the correlates of school-year employment are generally negative" (1991, p. 309). Do their findings suggest to them any "optimal level at which part-time work is better than no job at all? "Unfortunately, with few exceptions, the analyses presented in this study do not reveal clear hours thresholds beyond which the correlates of employment become dramatically more negative" (p. 310). Steinberg and Dornbusch then draw a straightforward conclusion: "The most prudent interpretation of these data, therefore, suggests simply that the potential risks of part-time employment during the school year increases with increasing time commitments to a job" (p. 310).

Bivariate Relationships and Possible Implications. Our own bivariate findings from the present analyses of seniors in the classes 1985-1989, along with most of our earlier analyses (Bachman et al., 1986), are largely consistent with the above observations by

Steinberg and Dornbusch. As reported in Figures 1-15 (solid lines showing bivariate relationships), and as summarized in the first 15 rows of Table 2, hours of work are positively correlated with smoking cigarettes, drinking alcohol, using illicit drugs, interpersonal aggression, theft, trouble with police, arguments with parents, victimization, lack of sleep, lack of exercise, and truancy. Hours of work are negatively correlated with seniors' satisfaction with the way their leisure time is spent and the amount of fun they are having (Figures 20 and 21). The fact that hours of work are correlated with frequency of dating (Figure 17) may be one positive finding from a teenager's perspective, but in the eyes of some parents even that may not be an unalloyed benefit. It is worthwhile to note that self-esteem shows practically no correlation with hours worked.

[TABLE 2 ABOUT HERE]

In the present analysis we have been able to examine the shapes of relationships with hours of work in considerable detail; whereas Steinberg and Dornbusch (1991) used four categories (1-10 hours per week, 11-15, 16-20, 21+), we used seven (1-5 hours per week, 6-10, 11-15, 16-20, 21-25, 26-30, 31+), and we were able to observe some important variations at the upper levels of hours worked. We found some departures from linearity, to be sure; however, these departures were not consistent across variables and often not even consistent between males and females on the same variable. The dominant finding remains that with each increase in numbers of hours worked, most of the associated problems tend also to increase. (This general pattern of linearity can be confirmed by noting in Table 2 that the *r* values for product-moment correlations, which reflect only linear relationships, are usually nearly as large as the corresponding *eta* values, which reflect both linear and non-linear relationships.) Thus a fair reading of our bivariate findings would be that 1-5 hours of work per week is "better" for seniors than 6-10 hours, which in turn is "better" than 11-15 hours, and so on.

Is no work at all better than 1-5 hours per week? Here the differences generally are small and not at all consistent. Thus one might reasonably conclude that there is little or no "harm" in seniors working a very few hours per week, and such work may be beneficial.

MCA Results Controlling Background and Educational Success. The bivariate findings summarized above are of descriptive value, but they do not clearly confront the central problem in cross-sectional studies of students' part-time work: Are those things which correlate with hours of work also the consequences of such work? As Steinberg and Dornbusch acknowledge, "It is not possible to rule out the arguments that the results merely reflect differential selection into the workplace" (1991, p.311); nevertheless, it seems clear that those authors favor a particular causal interpretation, as indicated by statements such as, "...students who work long hours do less well in school than their peers," and such differences are "... of sufficient magnitude to warrant concern" (p. 310). Our interpretation of that relationship is somewhat different; although we agree that long hours of work may contribute to poor school performance, we think it is especially likely that students with a history of poorer grades and less interest in present (and future) schooling are—as a

consequence—more willing to spend long hours in a part-time job. That latter causal interpretation was incorporated in our multivariate analyses, as noted earlier, even though that involved some risk of "overcontrolling" for educational success.

Now, as we review the MCA results, it seems that any overcontrolling of educational success was probably not a serious problem. Controlling educational success, as well as various background factors, certainly "damped down" the apparent effects of hours of work on some outcome measures, especially drug use. On the other hand, even after all such controls, there remained substantial positive relationships between hours of work and drug use (see Figures 1-6). Moreover, some of the bivariate relationships were little changed after the inclusion of the other predictors. Most notably, for the outcome dimension where causal interpretation seems clearest and most straightforward—loss of sleep time as "a result" of high hours of part-time work—controlling for educational success and background factors did not modify the bivariate relationship at all (see Figure 12).

In sum, the MCA analyses give us a rather complex answer to the question of whether the correlates of part-time work are also its consequences. When the controls for background and educational success show virtually no impact (e.g., the negative correlation between hours of work and hours of sleep), we have greater confidence in suggesting a causal interpretation. But when the controls lead to important reductions in strength of relationships (e.g., the positive relationship with drug use, which showed multivariate coefficients about one-quarter to one-third lower than the bivariate coefficients), then we are left with the difficult question of whether we have "overcontrolled" or "undercontrolled." In our judgment, the MCA results probably reflect insufficient rather than excessive controls, for three reasons. First, although we view our educational success measures as mostly causally prior to senior year hours of work, the MCA multiple regression approach does not impose such a causal ordering—it simply treats both (along with background factors) as "co-equal" predictors of each dependent variable. Second, our set of control measures is surely incomplete. Third, the MCA program makes no adjustment for measurement errors, and thus falls short of fully controlling those dimensions which have been included in the equation.

LISREL Results Controlling GPA and Earlier Drug Use. Our LISREL analysis strategy deals with each of the three problems of insufficient controls mentioned above: it treats high school grade point average as causally prior to senior year hours of work; it includes measures of prior drug use as predictors; and it incorporates adjustment for measurement errors. The LISREL results are dramatic: the age/grade of onset measures treated as exogenous variables "explain" substantial amounts of the variance in current drug use, and hours of work (and also earnings) add nothing or virtually nothing in the way of additional explained variance.

The most serious limitation in these LISREL analyses lies in our lack of measures and resultant inability to control for some other highly relevant dimensions of earlier experience: hours of part-time work (and earnings) during earlier grades. When we control earlier drug

use we are able to provide at least an approximate answer to the question: Do senior-year hours of part-time work have an impact on changes in drug use—i.e., on senior year drug use above and beyond that predictable from earlier drug use? That is an interesting and important question, to which our answer is largely negative. However, we must keep in mind that another even more important question has been left unanswered: To what extent does part-time work in earlier grades influence contemporaneous and subsequent drug use?

Tentative Conclusions with Respect to Drug Use and Hours of Student Part-Time Work. Our bivariate data reveal important positive correlations between students' hours of part-time work and their use of various drugs. The MCA analyses indicate that these relationships probably are not primarily attributable to prior differences in background and/or educational success. The LISREL analyses using age/grade of onset as exogenous predictors of current drug use strongly suggest that senior-year hours of work are not the primary cause of the correlations with drug use. These LISREL analyses also provide some indication that early drug use may contribute to long hours of part-time work during the senior year. But from these analyses we do not know to what extent long hours of part-time work in ninth, tenth, or eleventh grade underlie the relationships observed here.

Earnings as a Factor Linking Hours of Work to Drug Use. We return now to the simpler LISREL analyses, Pattern A, which treated only GPA as an exogenous variable, and which focused primarily on the question of whether hours of work per week may affect drug use directly and/or indirectly via weekly earnings. At first blush these analyses may seem to be of little interest, given that the addition of the early drug use measures in Pattern B largely "washed out" the Pattern A effects. But as suggested in the previous section, the Pattern B analyses are misspecified ("unbalanced," in effect) because they include controls for earlier drug use but none for earlier part-time work. The Pattern A analyses, on the other hand, present what may be a more balanced picture of the relationship which has evolved between work and drug use during the high school years.

The Pattern A LISREL results suggest that to the extent that hours of part-time work have impacts on smoking, drinking, and marijuana use, those effects among males are mostly direct, whereas among females they are mostly indirect via earnings. For cocaine use, however, any effects among both males and females appear to be mostly indirect via earnings.

The finding that cocaine use is directly linked to income is quite plausible, given the high cost of cocaine. Less easily explained are the sex differences—the findings that smoking, drinking, and marijuana use are more directly linked to income among females than among males. One possibility, which cannot be readily explored with the present dataset, is that those females whose part-time work is relatively low paying babysitting may be less likely to be involved in drug use.

In any case, the Pattern A LISREL findings provide at least some support for the notion that long hours of part-time work may contribute to drug use among students simply

by providing them with more spending money. Other analyses of Monitoring the Future samples (Bachman, 1983, and updates) have shown that relatively little of high school seniors' earnings are set aside for college or other long-range saving; instead, the largest category is so-called "discretionary" spending. Most students working long hours are thus not working to build a future through education, or to contribute to family finances. Rather, it appears that their earnings are devoted primarily to supporting their current lifestyles. It has been argued elsewhere that a variety of problems and risks may be associated with such "premature affluence" (Bachman, 1983). The present analyses provide some additional evidence that drug use may be among these problems.

CONCLUDING COMMENTS

The facts that hours of part-time work among high school students are correlated with mostly negative "outcomes" are pretty well established, and the present findings add to that storehouse of facts. The interpretation of these links remains difficult, however, and we may have done more to illustrate the difficulties than to resolve them. Clearly, if long hours of work are a primary cause of various problem behaviors, then efforts should be made to monitor and reduce the hours of work among adolescents. Furthermore, if money is also a contributor to problem behaviors, some attempt to enforce saving substantial portions of earnings may prove useful. Nevertheless, at least at this point, the picture still is not sufficiently clear. Obviously, long hours (and high earnings) are reactions to other factors—some of which may be pre-existing problems. Therefore, policies aimed to curb hours or earnings should be viewed with caution. In our own view, the jury is still out.

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Table 1
Working Status and Number of Hours Worked Per Week by Gender

	Males		Females	
	N	Percent	N	Percent
<u>Work Status:</u>				
Not Working	6,487	18.8%	7,680	20.6%
Working for Pay	25,898	74.9	27,120	72.7
Working, not for pay	2,190	6.3	2,488	6.7
Total	34,575	100.0%	37,288	100.0%
<u>Hours Worked per Week^a:</u>				
5 or less	2,347	9.1%	2,348	8.7%
6-10	2,801	10.8	3,186	11.7
11-15	3,321	12.8	4,458	16.4
16-20	5,390	20.8	6,721	24.8
21-25	4,747	18.3	4,994	18.4
26-30	3,365	13.0	2,903	10.7
31 or more	3,927	15.2	2,510	9.3
Total	25,898	100.0%	27,120	100.0%

^aIncluding only those working for pay

Table 2
Summary of Linear and Non-Linear Relationships
with Hours of Part-Time Work

Dependent Variable	Males			Females		
	<i>r</i>	Eta	Beta	<i>r</i>	Eta	Beta
1/2 pack or more cigarette use	.130	.141	.091	.111	.118	.082
Monthly alcohol use	.104	.108	.080	.120	.135	.099
Heavy alcohol use in past 2 weeks	.101	.102	.066	.091	.094	.065
Monthly marijuana use	.061	.065	.037	.088	.092	.068
Monthly cocaine use	.060	.069	.050	.059	.069	.056
Monthly amphetamine use	.070	.074	.054	.061	.068	.055
Interpersonal aggression	.102	.132	.107	.068	.096	.082
Theft	.104	.114	.097	.100	.107	.084
Trouble with Police	.086	.102	.076	.036	.047	.045
Arguing with parent	.088	.096	.078	.100	.123	.083
Victimization	.092	.113	.102	.082	.102	.092

Table 2, cont.
Summary of Linear and Non-Linear Relationships
with Hours of Part-Time Work

Dependent Variable	Males			Females		
	r	Eta	Beta	r	Eta	Beta
7+ hours of sleep	-.183	.189	.186	-.185	.181	.182
Eating breakfast	-.118	.142	.120	-.134	.141	.113
Exercising vigorously	-.142	.162	.130	-.099	.134	.127
Days of school skipped	-.116	.122	.094	.102	.114	.093
Evenings out	.009	.040	.040	.035	.080	.053
Evenings out on date	.144	.146	.132	.132	.137	.110
Satisfaction with life	-.030	.053	.043	-.046	.076	.069
Satisfaction with self	-.009	.040	.037	-.048	.052	.041
Satisfaction with fun	-.040	.055	.059	-.061	.087	.086
Satisfaction with leisure	-.162	.167	.177	-.168	.171	.181
Satisfaction with job	.038	.088	.093	.035	.072	.072
Self-esteem	-.039	.051	.034	-.012	.054	.050

Figure 1
Half-Pack or More per Day Cigarette Use
Related to Hours of Work, with and without
Controls for Background and Educational
Success

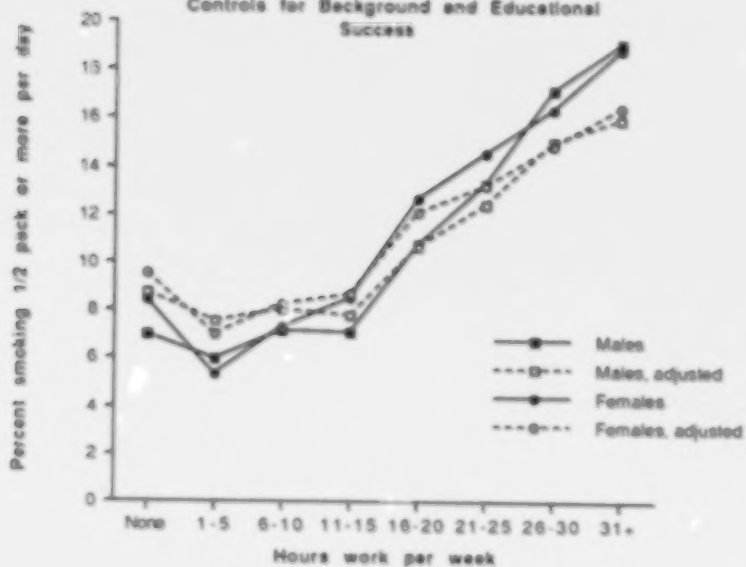


Figure 2
Monthly Alcohol Use Related to Hours of
Work, with and without Controls for
Background and Educational Success

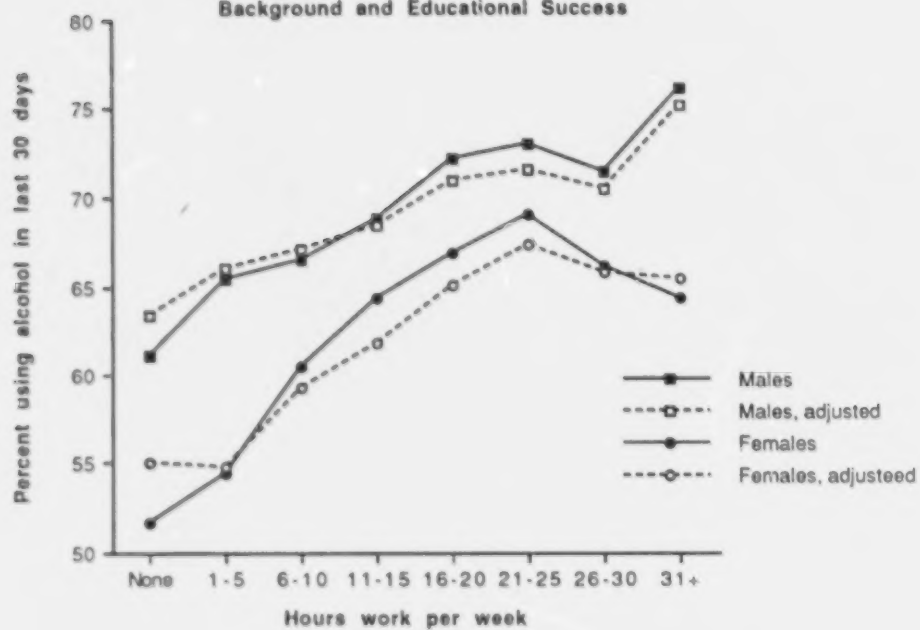


Figure 3
Heavy Alcohol Use in Past Two Weeks
Related to Hours of Work, with and without
Controls for Background and Educational
Success

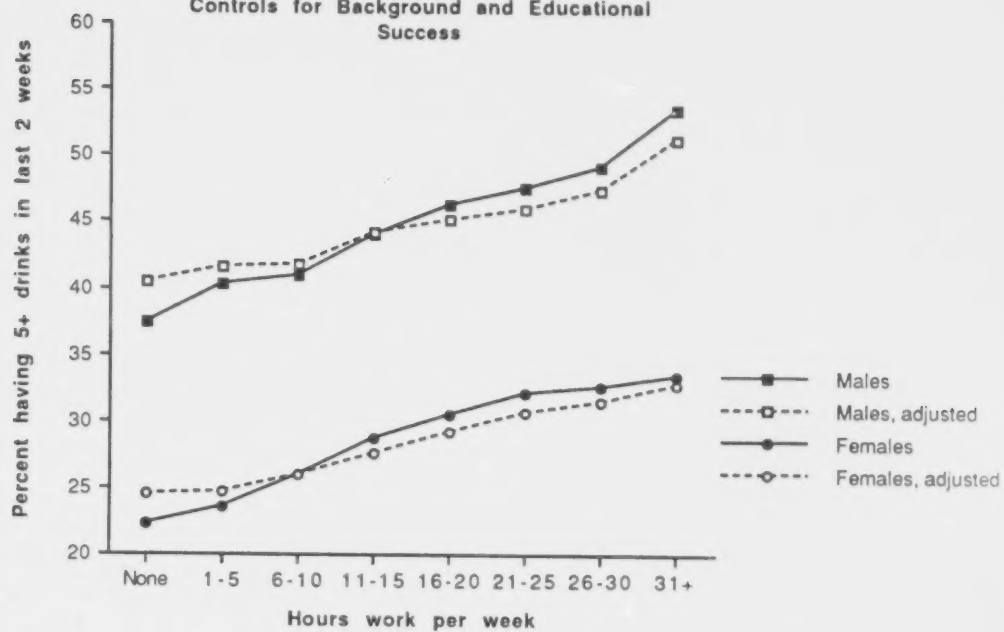


Figure 4
Monthly Marijuana Use Related to Hours of
Work, with and without Controls for
Background and Educational Success

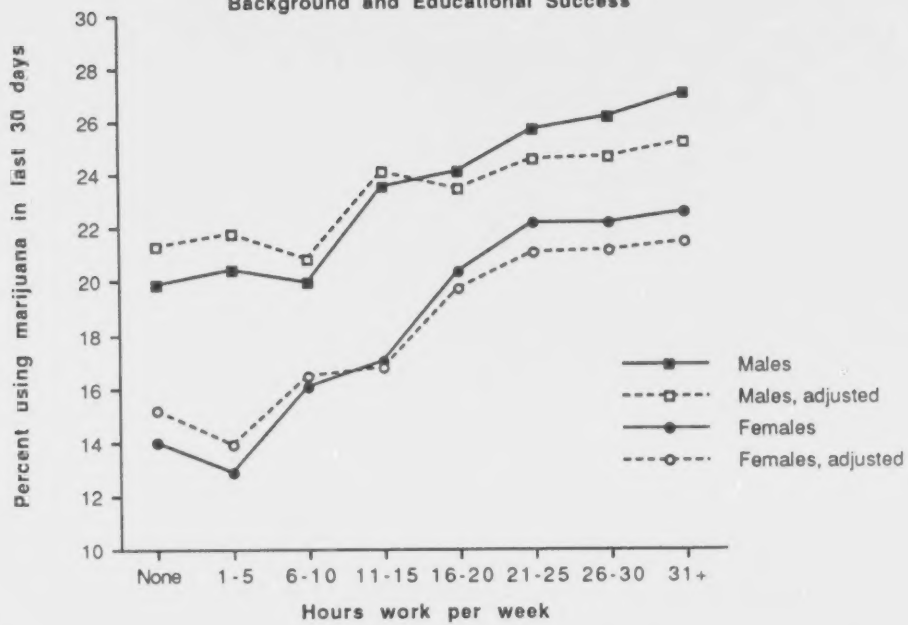


Figure 5
Monthly Cocaine Use Related to Hours of
Work, with and without Controls for
Background and Educational Success

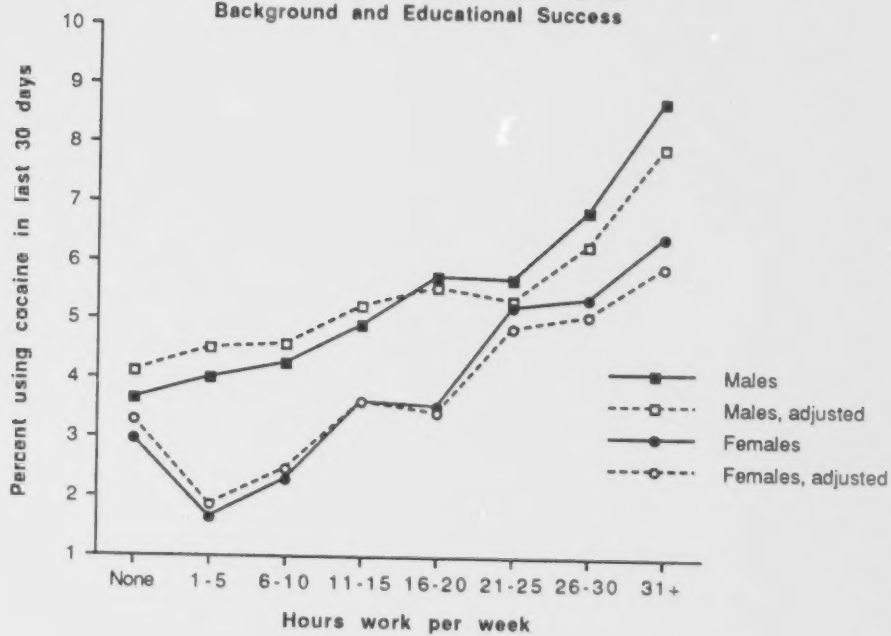


Figure 6
Monthly Amphetamine Use Related to Hours
of Work, with and without Controls for
Background and Educational Success

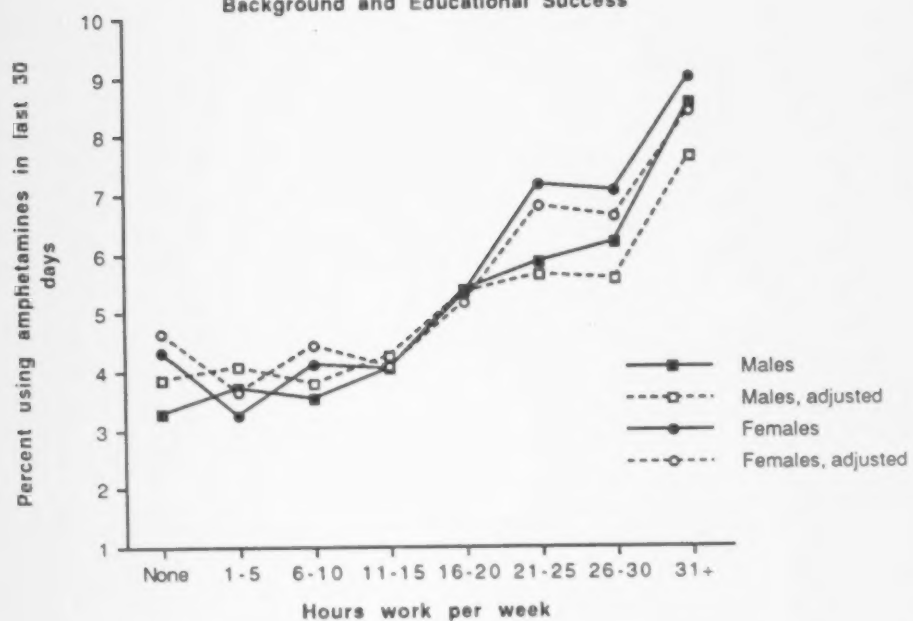


Figure 7
Interpersonal Aggression Related to Hours
of Work, with and without Controls for
Background and Educational Success

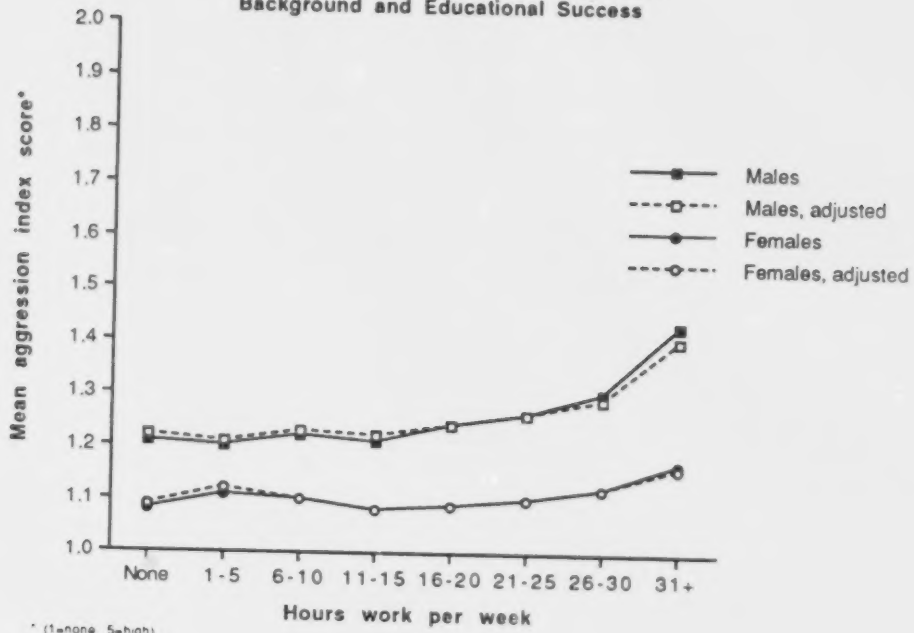


Figure 8
Theft Related to Hours of
Work, with and without Controls for
Background and Educational Success

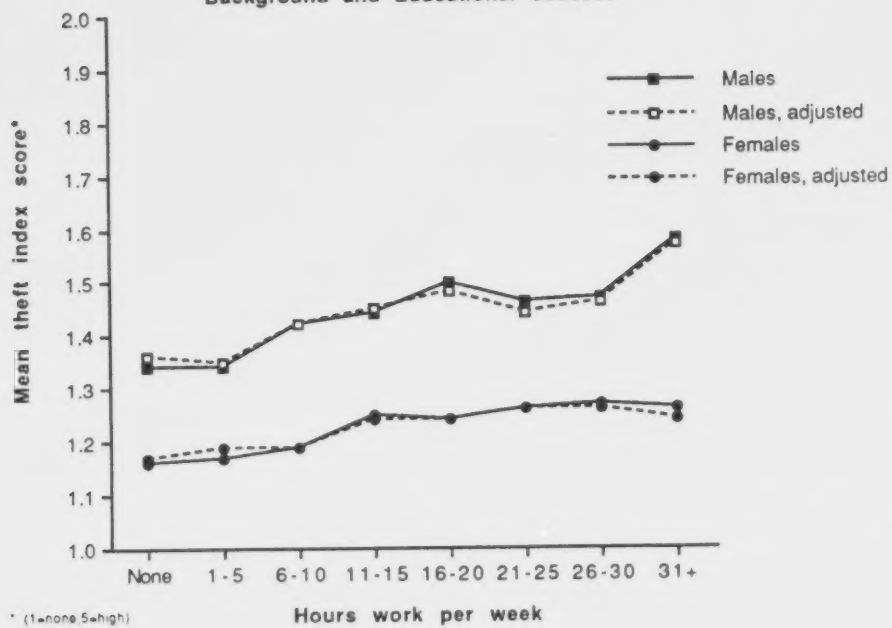


Figure 9
 Trouble with Police Related to Hours of
 Work, with and without Controls for
 Background and Educational Success

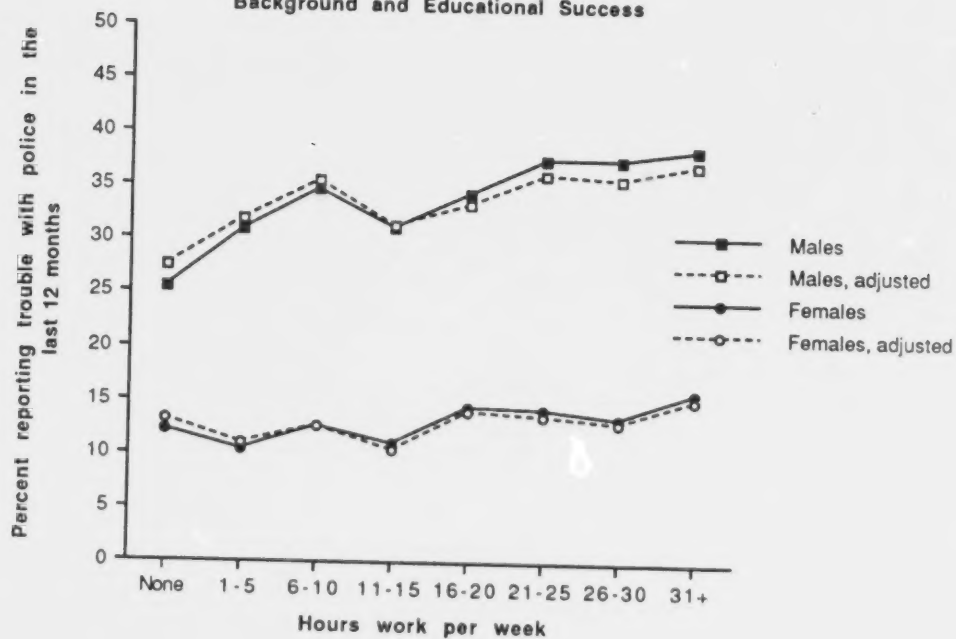
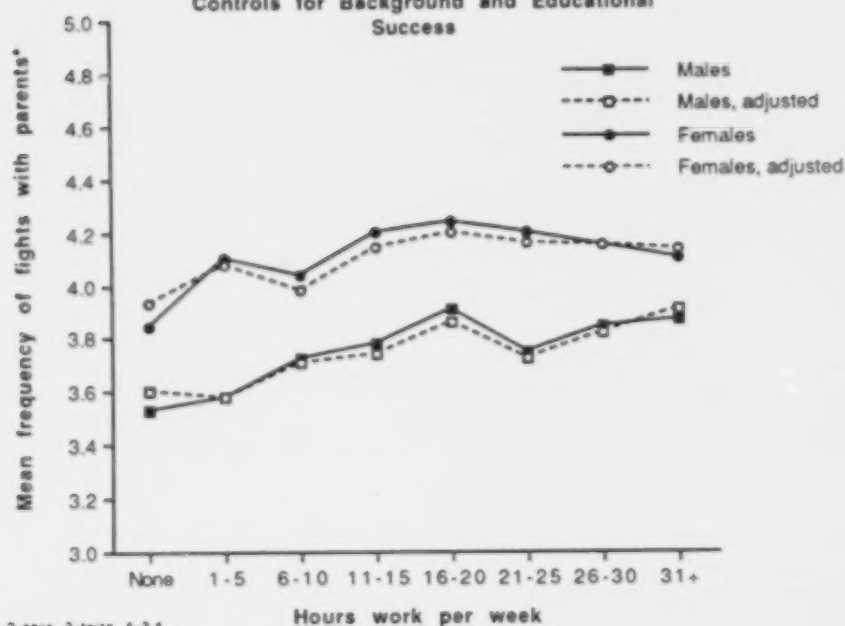


Figure 10
Arguing or Fighting with a Parent Related
to Hours of Work, with and without
Controls for Background and Educational
Success



* (1=not at all, 2=once, 3=twice, 4=3-4 times, 5=5+ times)

Figure 11
Victimization Related to Hours of Work,
with and without Controls for Background
and Educational Success

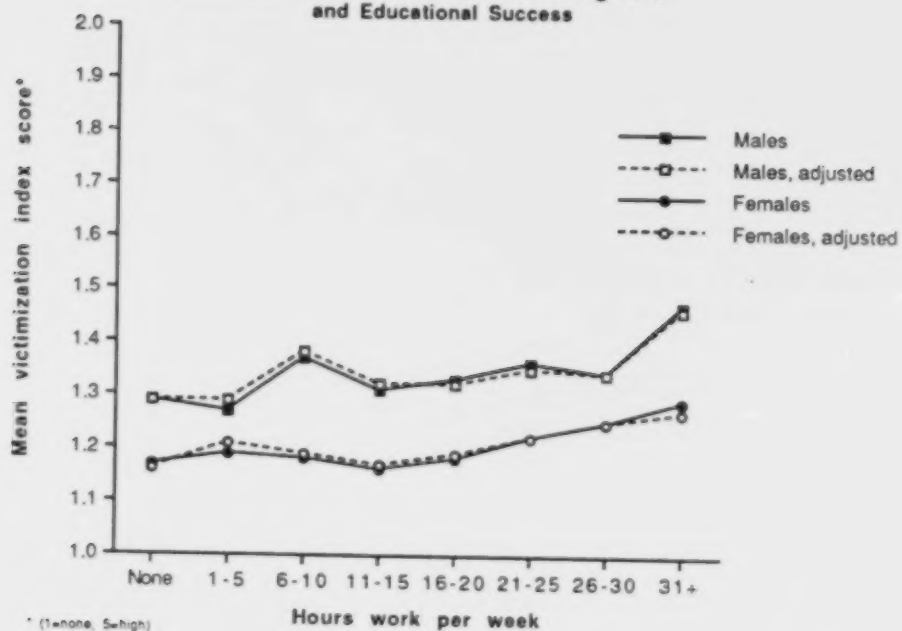
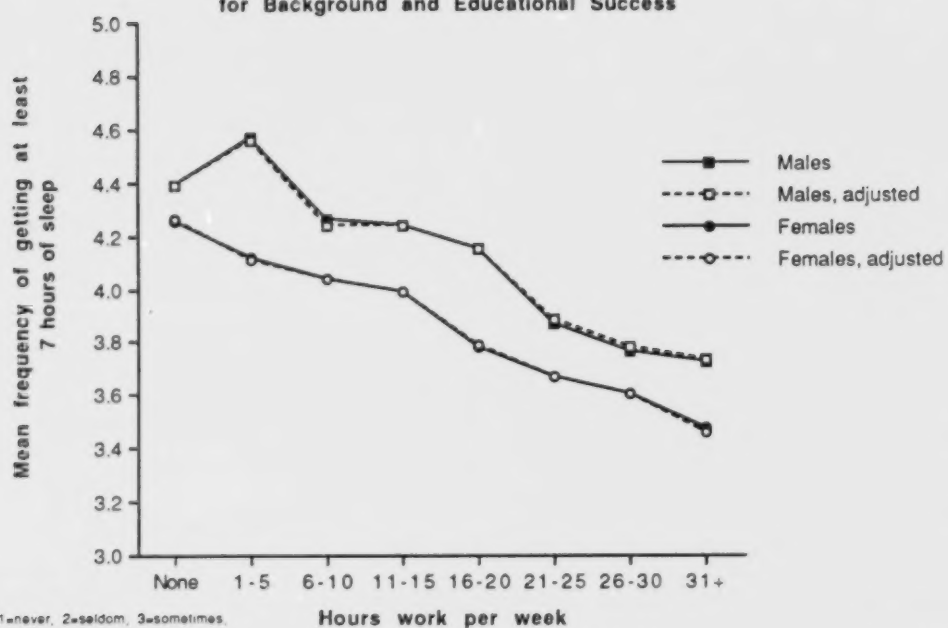


Figure 12
Seven or More Hours of Sleep Related to
Hours of work, with and without Controls
for Background and Educational Success



(1=never, 2=seldom, 3=sometimes,
4=most days, 5=nearly every day,
6=every day)

Figure 13
Eating Breakfast Related to Hours of Work,
with and without Controls for Background
and Educational Success

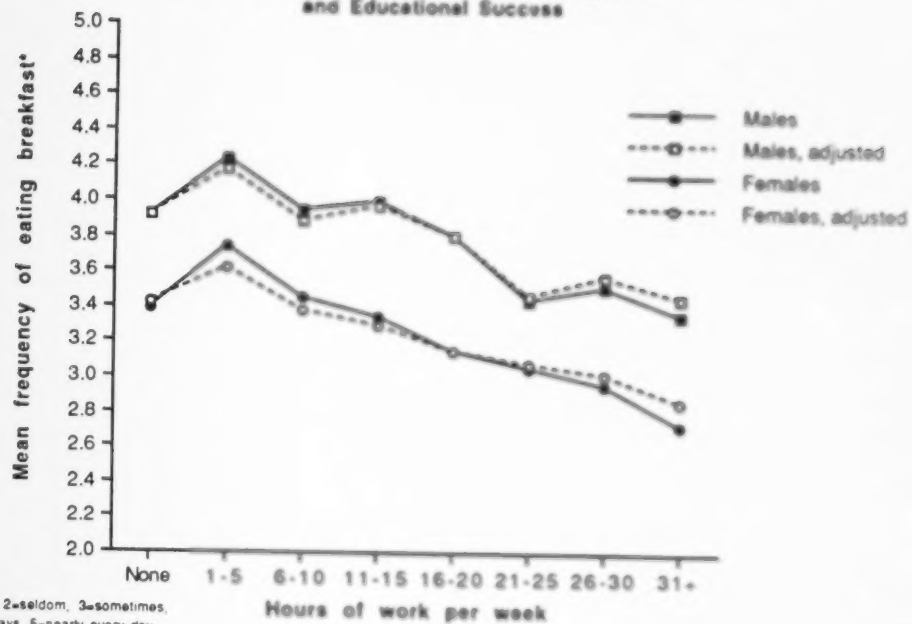
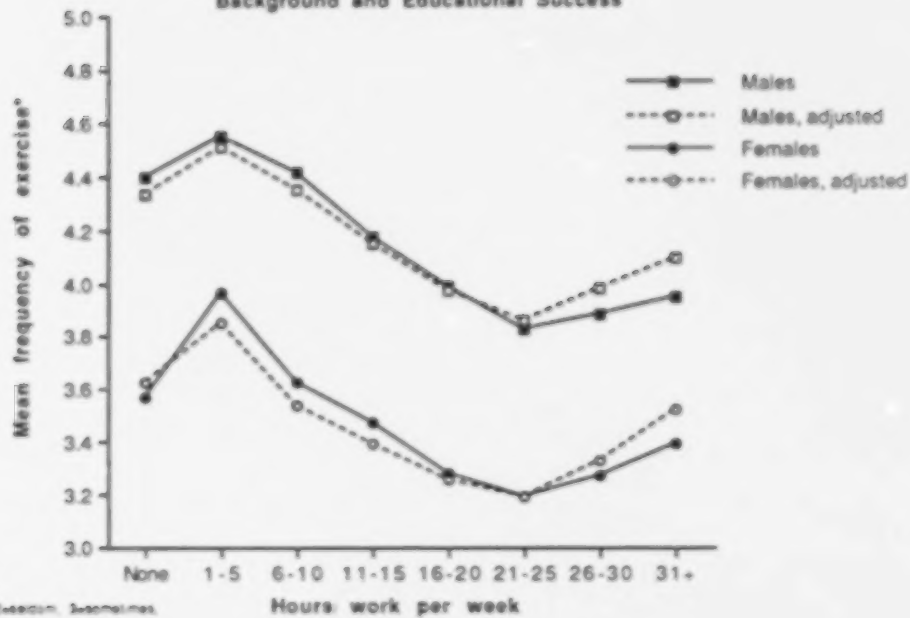


Figure 14
Exercising Vigorously Related to Hours of
Work, with and without Controls for
Background and Educational Success



* (Never, 2-3 times, 4-5 times, 6-7 times, 8-9 times, 10-11 times, 12-13 times, 14-15 times, 16-17 times, 18-19 times, 20-21 times, 22-23 times, 24-25 times, 26-27 times, 28-29 times, 30-31 times, 32-33 times, 34-35 times, 36-37 times, 38-39 times, 40-41 times, 42-43 times, 44-45 times, 46-47 times, 48-49 times, 50-51 times, 52-53 times, 54-55 times, 56-57 times, 58-59 times, 60-61 times, 62-63 times, 64-65 times, 66-67 times, 68-69 times, 70-71 times, 72-73 times, 74-75 times, 76-77 times, 78-79 times, 80-81 times, 82-83 times, 84-85 times, 86-87 times, 88-89 times, 90-91 times, 92-93 times, 94-95 times, 96-97 times, 98-99 times, 100-101 times, 102-103 times, 104-105 times, 106-107 times, 108-109 times, 110-111 times, 112-113 times, 114-115 times, 116-117 times, 118-119 times, 120-121 times, 122-123 times, 124-125 times, 126-127 times, 128-129 times, 130-131 times, 132-133 times, 134-135 times, 136-137 times, 138-139 times, 140-141 times, 142-143 times, 144-145 times, 146-147 times, 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Figure 15
Days of School Skipped or "Cut" Related to
Hours of Work, with and without Controls
for Background and Educational Success

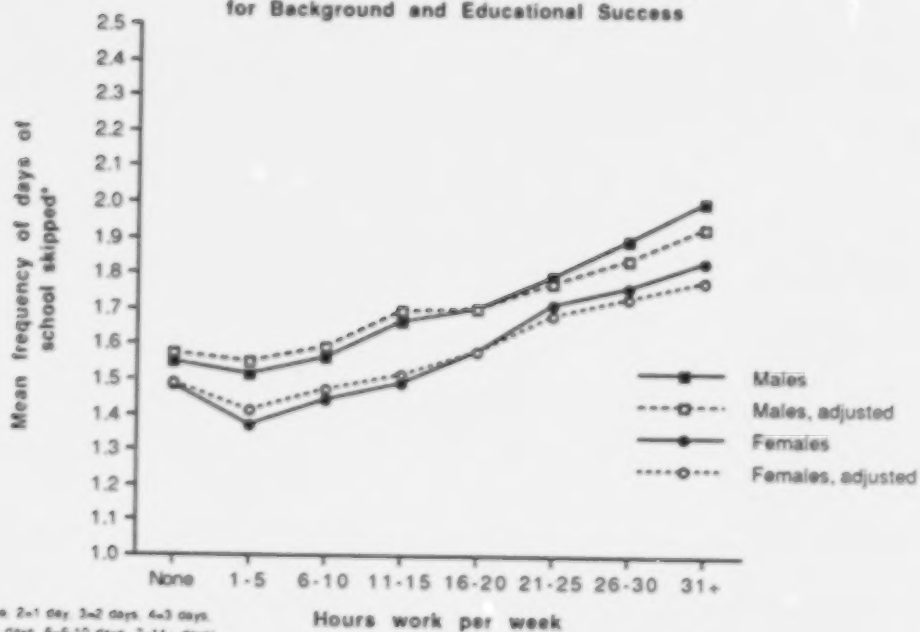
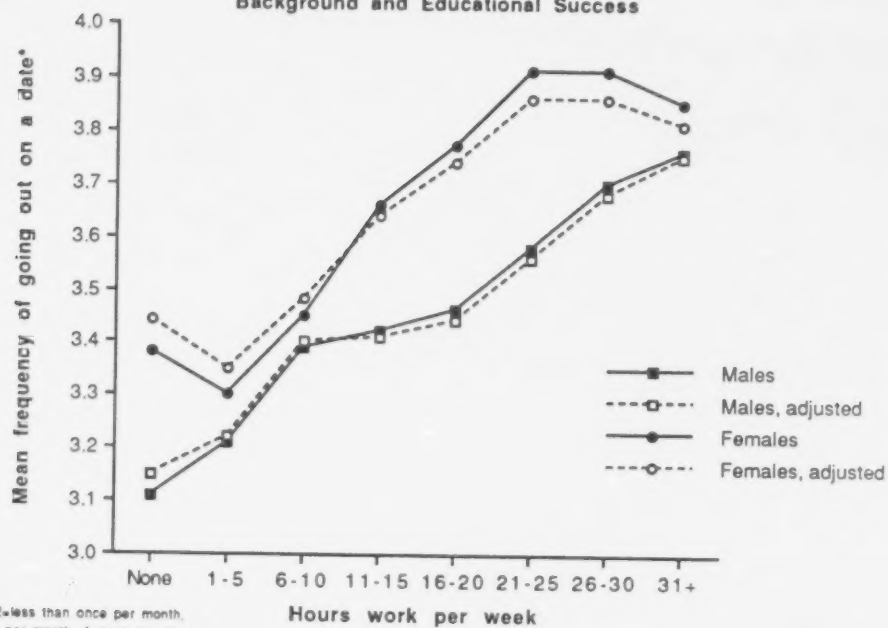


Figure 16
Evenings Out for Fun and Recreation
Related to Hours of Work, with and without
Controls for Background and Educational
Success



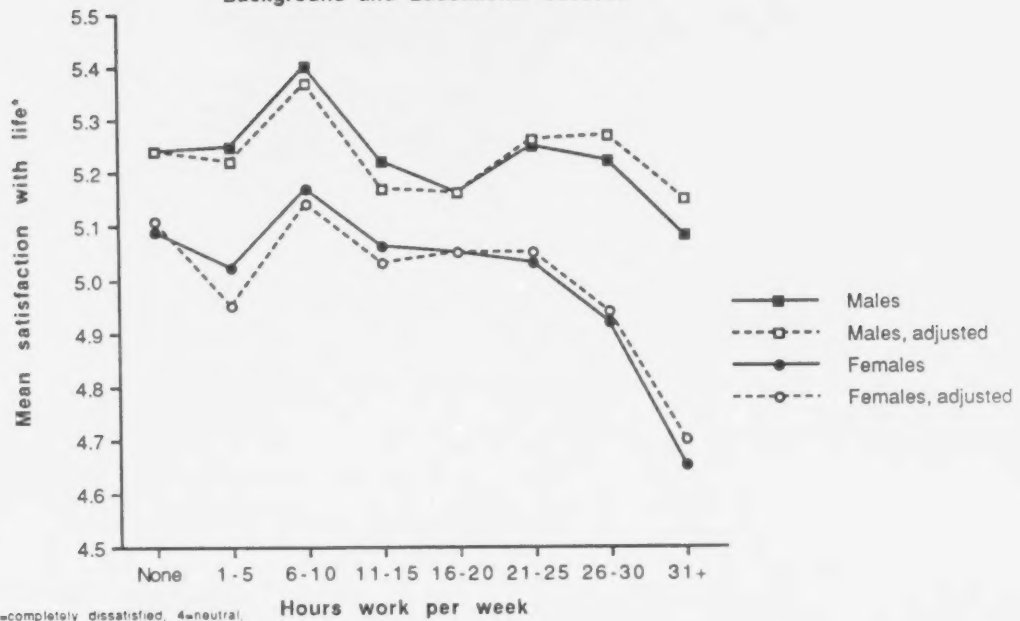
* (1=less than 1, 2=1, 3=2, 4=3,
5=4-5, 6=6-7)

Figure 17
Evenings Out on a Date Related to Hours of
Work, with and without Controls for
Background and Educational Success



* (1=never, 2=less than once per month,
3=2-3 times per month, 4=once per month,
5=2-3 times per week, 6=3+ times per week)

Figure 18
Satisfaction with Life Related to Hours of
Work, with and without Controls for
Background and Educational Success



* (1=completely dissatisfied, 4=neutral,
7=completely satisfied)

Figure 19
Satisfaction with Self Related to Hours of
Work, with and without Controls for
Background and Educational Success

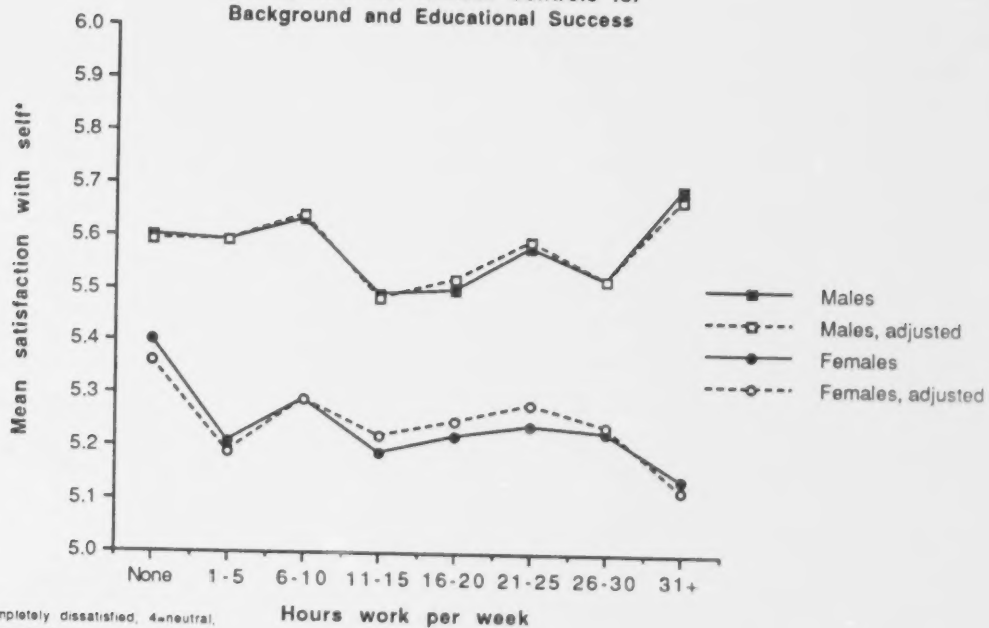
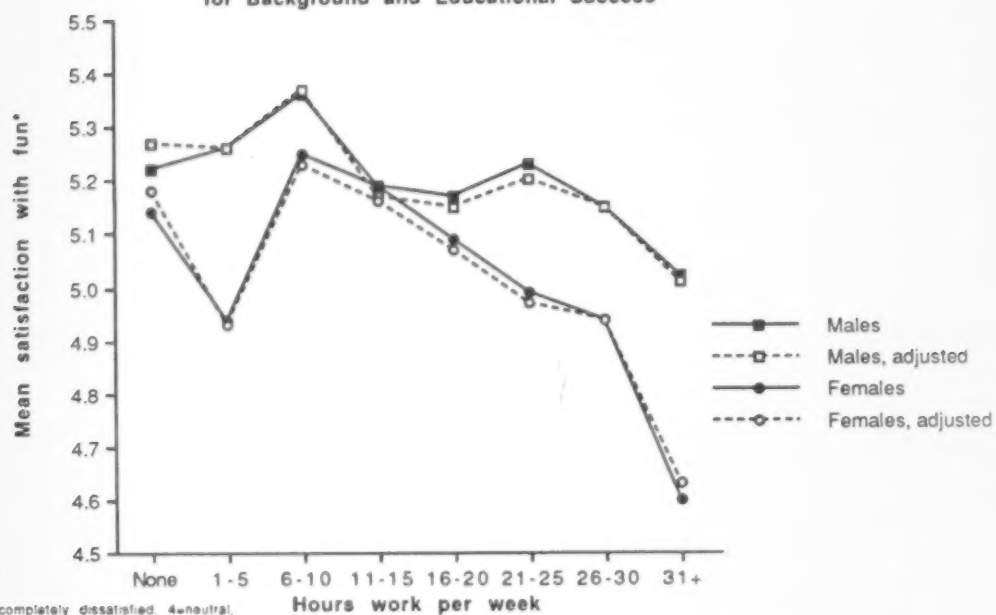


Figure 20
Satisfaction with Amount of Fun Related to
Hours of Work, with and without Controls
for Background and Educational Success



* (1=completely dissatisfied, 4=neutral,
7=completely satisfied)

Figure 21
Satisfaction with the Way Leisure Time is
Spent Related to Hours of Work, with and
without Controls for Background and
Educational Success

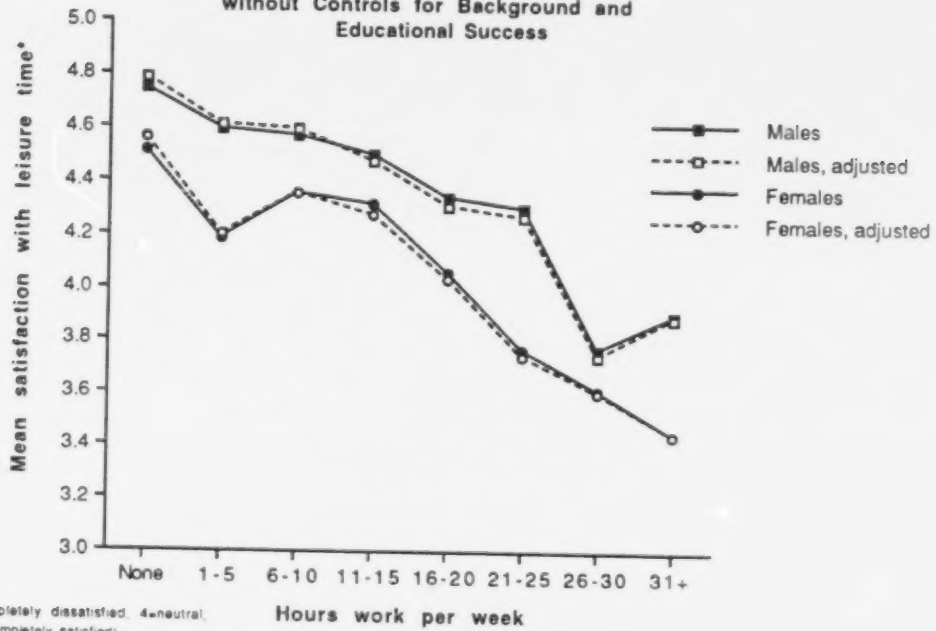
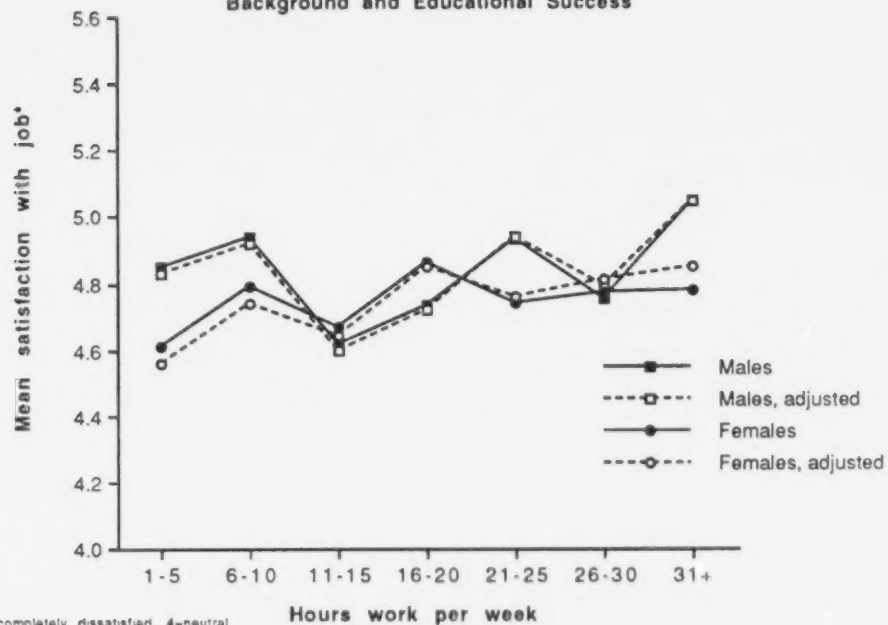


Figure 22
Satisfaction with Job Related to Hours of
Work, with and without Controls for
Background and Educational Success



* (1=completely dissatisfied, 4=neutral,
7=completely satisfied)

Figure 23
Self-Esteem Related to Hours Work per
Week, with and without Controls for
Background and Educational Success

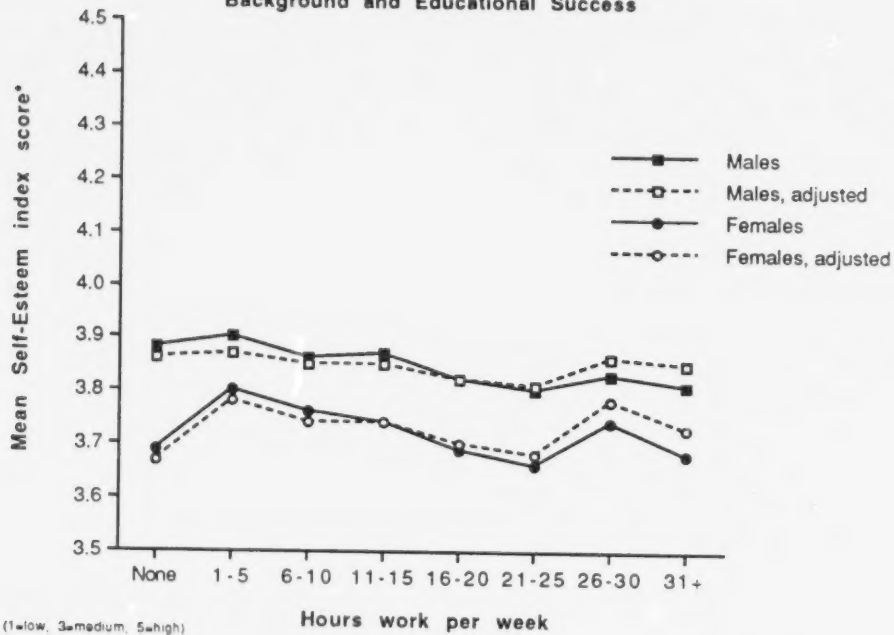
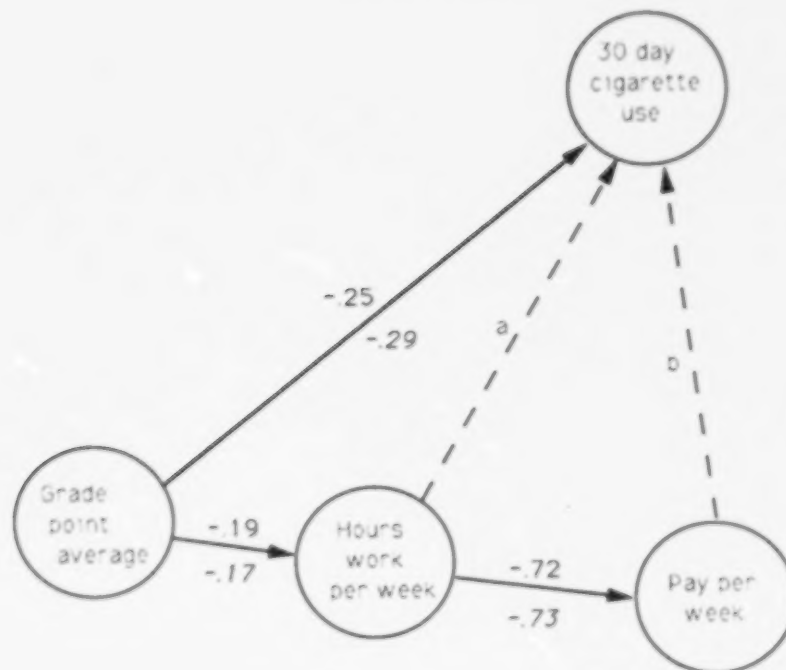


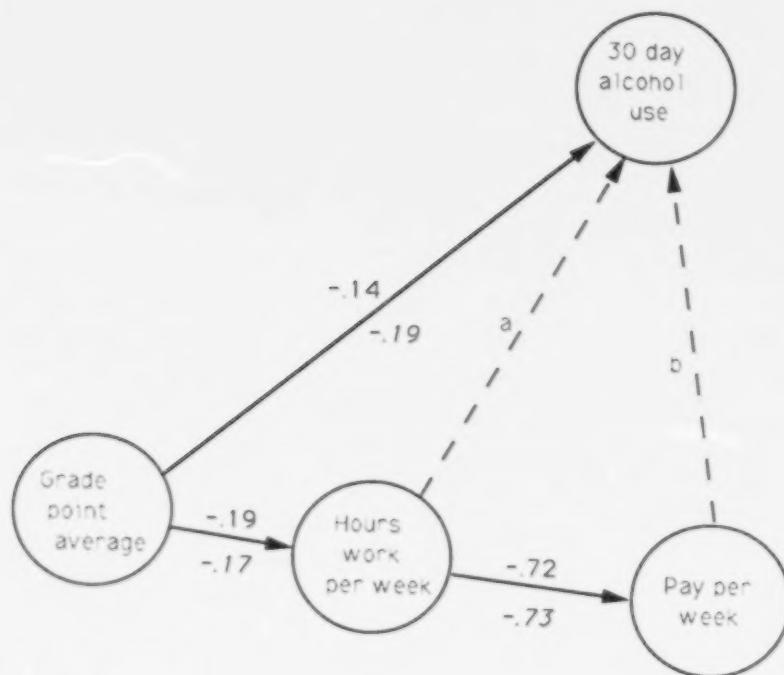
Figure 24
Predicting 30 day cigarette use
(Pattern A)



Model	MALES			FEMALES		
	Paths		% of variance	Paths		% of variance
	A	B	explained	A	B	explained
1)	-	-	8.1%	-	-	10.0%
2)	.15	-	10.1%	.14	-	11.0%
3)	-	.10	8.9%	-	.14	12.0%
4)	.19	-.05	10.3%	.06	.10	12.0%

Note: Italicized values below and/or to the right refer to females

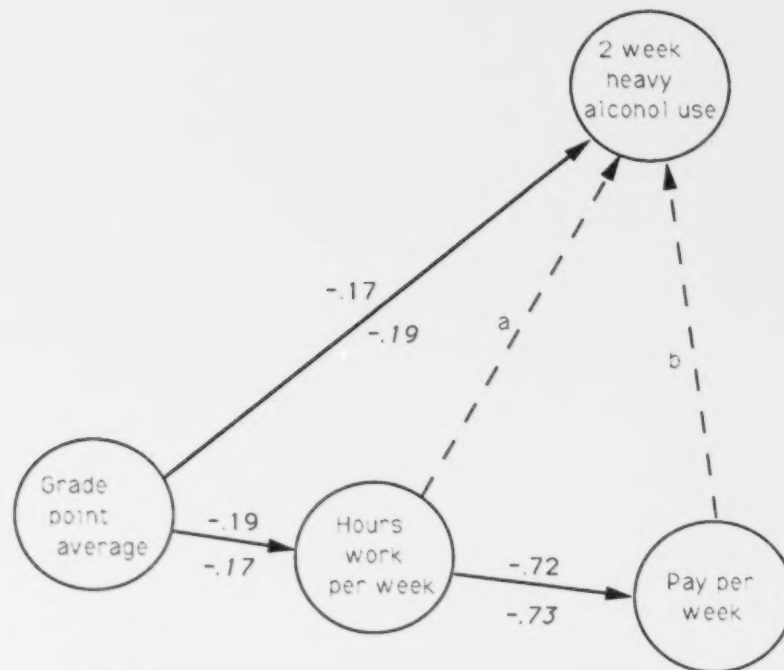
Figure 25
Predicting 30 day alcohol use
(Pattern A)



Model	MALES			FEMALES		
	Paths	% of variance		Paths	% of variance	
	A	B	explained	A	B	explained
1)	-	-	2.7%	-	-	4.3%
2)	.13	-	4.2%	.08	-	4.8%
3)	-	.11	3.8%	-	.12	5.7%
4)	.11	.03	4.2%	-.04	.16	5.8%

Note: Italicized values below and/or to the right refer to females

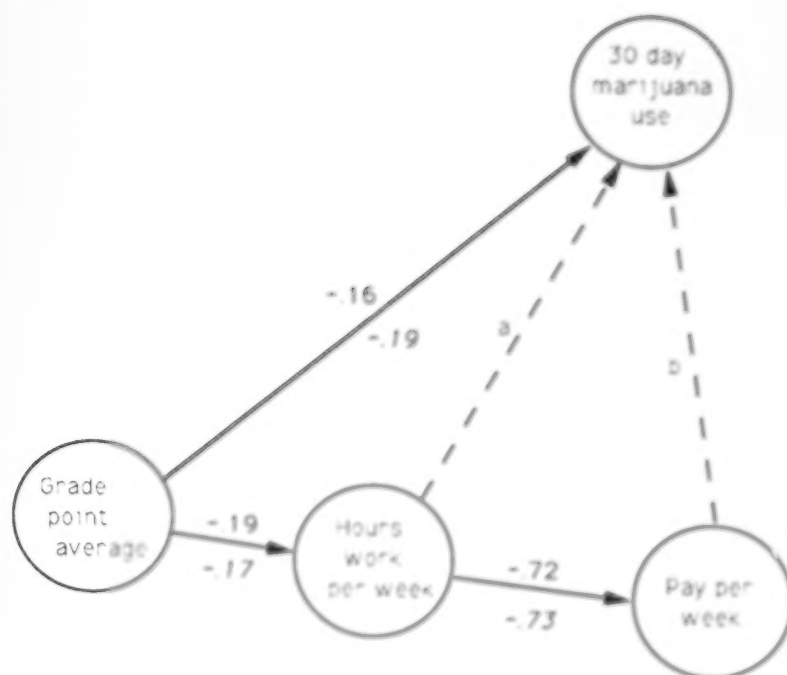
Figure 26
Predicting 2 week heavy alcohol use
(Pattern A)



Model	MALES			FEMALES		
	Paths		% of variance	Paths		% of variance
	A	B	explained	A	B	explained
1)	-	-	2.8%	-	-	4.3%
2)	.14	-	5.5%	.08	-	4.8%
3)	-	.10	4.7%	-	.12	5.4%
4)	.15	-.01	5.5%	-.001	.10	5.2%

Note: Italicized values below and/or to the right refer to females

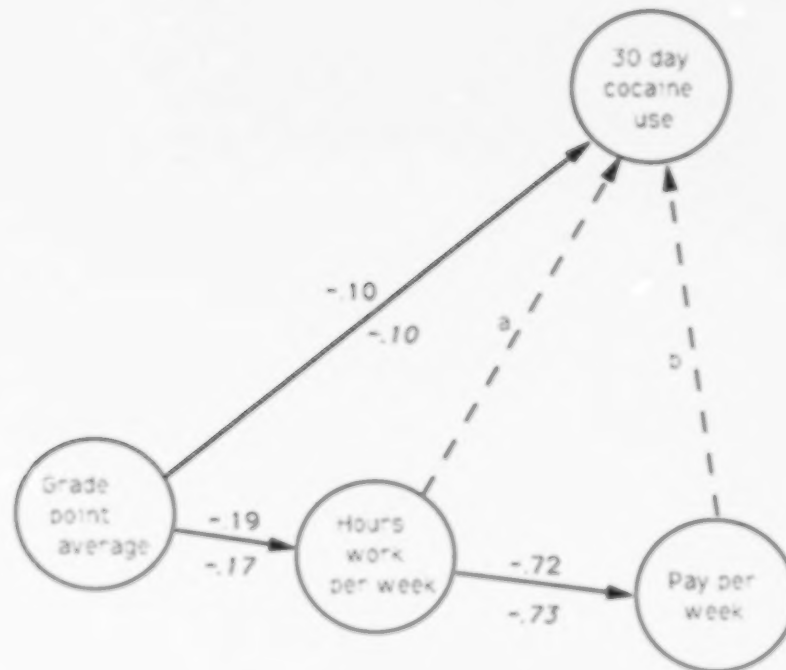
Figure 27
Predicting 30 day marijuana use
(Pattern A)



Model	MALES			FEMALES		
	Paths	% of variance		Paths	% of variance	
	A	B	explained	A	B	explained
1)	-	-	3.3%	-	-	3.8%
2)	.09	-	4.1%	.07	-	4.3%
3)	-	.09	4.0%	-	.08	4.4%
4)	.06	.04	4.1%	.02	.06	4.4%

Note: Italicized values below and/or to the right refer to females

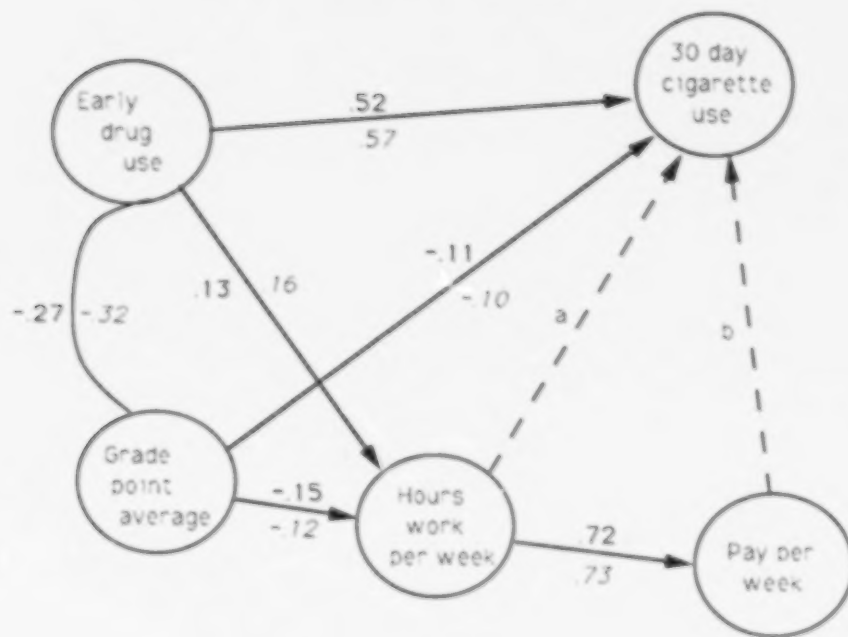
Figure 28
Predicting 30 day cocaine use
(Pattern A)



Model	MALES			FEMALES		
	Paths	A	% of variance explained	Paths	B	% of variance explained
1)	-	-	1.2%	-	-	1.3%
2)	.07	-	1.7%	.07	-	1.8%
3)	-	.07	1.7%	-	.09	2.0%
4)	.03	.05	1.7%	.01	.08	2.0%

Note: Italicized values below and/or to the right refer to females

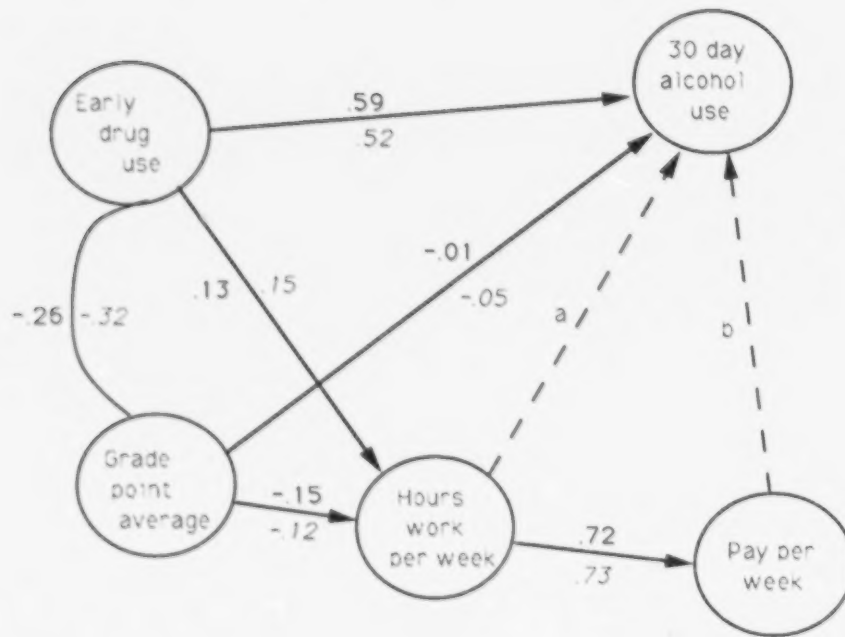
Figure 29
Predicting 30 day cigarette use
(Pattern B)



Model	MALES			FEMALES		
	Paths	% of variance explained		Paths	% of variance explained	
1)	-	-	32.1%	-	-	37.6%
2)	.06	-	32.4%	.04	-	37.7%
3)	-	.02	32.1%	-	.05	37.5%
4)	.11	-.06	32.6%	.11	.04	37.6%

Note: Italicized values below and/or to the right refer to females

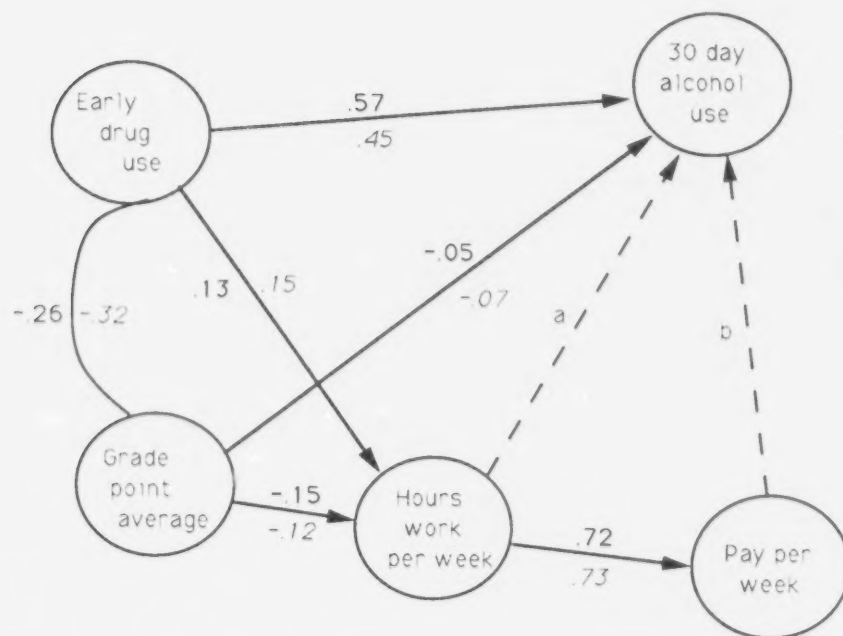
Figure 30
Predicting 30 day alcohol use
(Pattern B)



Model	MALES			FEMALES		
	Paths A	Paths B	% of variance explained	Paths A	Paths B	% of variance explained
1)	-	-	35.5%	-	-	28.3%
2)	.05	-	27.1%	.01	-	28.3%
3)	-	.05	35.5%	-	.04	28.2%
4)	.05	.01	35.5%	-.05	.08	28.3%

Note: Italicized values below and/or to the right refer to females

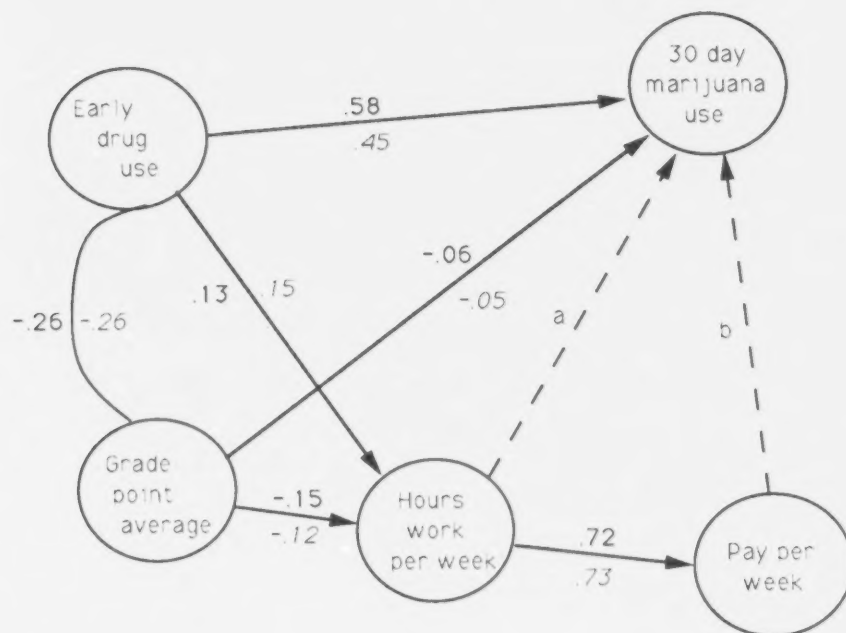
Figure 31
Predicting 2 week heavy alcohol use
(Pattern B)



Model	MALES			FEMALES		
	Paths		% of variance explained	Paths		% of variance explained
1)	A	B		A	B	
1)	-	-	33.6%	-	-	22.5%
2)	.07	-	33.8%	.02	-	22.5%
3)	-	.04	33.6%	-	.02	22.4%
4)	.09	-.03	33.9%	-.01	.03	22.4%

Note: Italicized values below and/or to the right refer to females

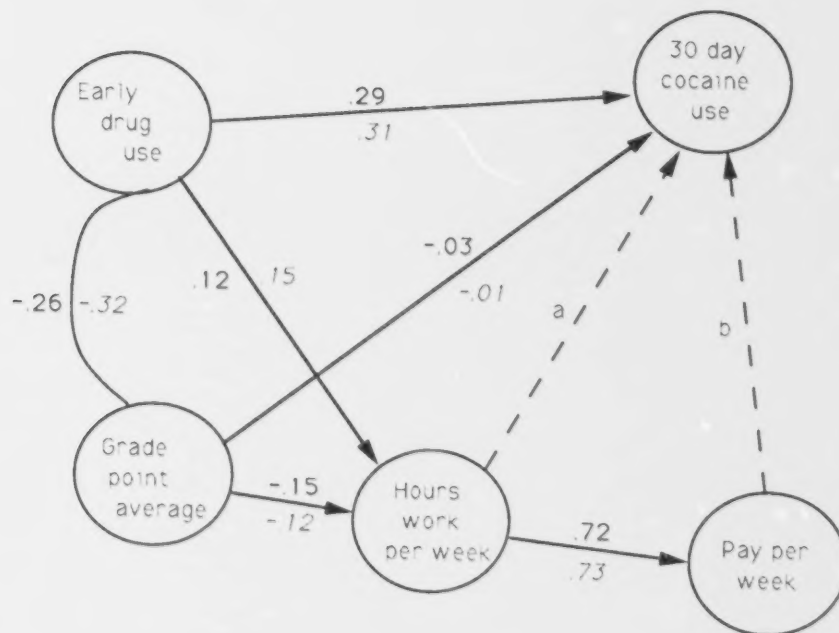
Figure 32
Predicting 30 day marijuana use
(Pattern B)



Model	<u>MALES</u>			<u>FEMALES</u>		
	Paths		% of variance	Paths		% of variance
	A	B	explained	A	B	explained
1)	-	-	35.1%	-	-	22.2%
2)	.04	-	34.9%	.01	-	22.1%
3)	-	.04	35.0%	-	.01	22.1%
4)	.02	.03	34.9%	.01	-.002	22.1%

Note: Italicized values below and/or to the right refer to females

Figure 33
Predicting 30 day cocaine use
(Pattern B)



Model	MALES			FEMALES		
	Paths	A	% of variance explained	Paths	B	% of variance explained
1)	-	-	9.0%	-	-	9.6%
2)	.04	-	9.1%	.03	-	9.6%
3)	-	.04	9.1%	-	.04	9.6%
4)	.00	.04	9.1%	.00	.04	9.6%

Note: Italicized values below and/or to the right refer to females